

**City of Kirkland  
SMP Workshop  
February 28, 2009  
Notes**

On February 28, 2009, from 10 a.m. – Noon, the City of Kirkland held a workshop to talk about the draft regulations implementing the Shoreline Master Program with citizens. The meeting was held at the Peter Kirk Community Center. Approximately 50 people attended the meeting. Attachment 1 to these notes is the list of attendees.

Mayor Jim Lounger welcomed the group and introduced the facilitator, Dee Endelman, Principal, Keys Organizational Consulting, and LLC. The facilitator reviewed the meeting goals:

- To inform shoreline property owners about the draft regulations, including potential impacts on property use
- To hear the community's thoughts about key issues including setbacks, protection structures, incentives and other ideas
- To identify next steps to provide this feedback to the Planning Commission in its deliberations for a balanced Shoreline Master Program

She then reviewed the proposed agenda for the morning (Attachment 2) and the meeting ground rules:

- Speak honestly and respectfully.
- Disagree with dignity.
- Share the air. Don't withhold your ideas or dominate the conversation.
- Don't interrupt a speaker.
- Listen deeply.

She introduced Stacy Clauson, Contract Planner, and Amy Summe of The Watershed Company who presented information on the SMP and requirements of the draft regulations. Throughout the presentation, citizens asked questions of the presenters. Attachment 3 to these notes is a copy of the Power Point Presentation prepared for the meeting. Because of the

limited time and number of citizen questions, Stacy and Amy were not able to present all of the information contained in the Power Point presentation.

After this presentation, Dick Sandaas, President of the Shoreline Property Owners and Contractors Association, presented the concerns that he had regarding the science and the draft regulations based on his research and conversations with others. He mentioned a paper he had written and gave his e-mail ([eride@msn.com](mailto:eride@msn.com)) so that people could request the paper. A copy of the paper is enclosed as Attachment 4. Thereafter, each participant was given the opportunity to list any concerns that they have. Concerns were noted on the flip chart as follows:

- The City should recognize that shoreline property owners are most concerned about the health of their shorelines and that shoreline property owners know the most about their shoreline conditions.
- Property owners need to understand implications of non-conforming provisions on their property
- Want to see “no net loss” to property owners, e.g., need to be able to repair our piers. Want to redevelop within existing footprint with no major cost added.
- Regarding piers, what are “minor repairs”? Clear and reasonable thresholds desired.
- Shoreline property owners need to tell the City how the shoreline is currently being used.
- Concerned about the amount of money these changes will cost – millions over the years
- Must be able to show attainable and measurable benefits.
- Be clear about what “no net loss” means.
- Regulations must be feasible, practical and flexible—if Corps standards regarding docks apply, we won’t be repairing our docks.
- Is dock shade bad and vegetation shade good?
- Concerned about unintended consequences that might impose hardships on owners or danger to homes.
- Regulations must be based on sound science (and “best available science” is not “sound science”) that is reviewed and vetted. There are a lot of holes in the science. Has there been a study of fish coming out of Sammamish?
- Need to tackle storm water runoff—we’re paying for that.

- Regarding replacement of non-conforming structures—zoning code changes? Owners don't understand the implications of this on their property.
- Bulkheads put into place before the Shoreline Management Act—how will these be handled? Under the provisions of RCW 90.58.270, are bulkheads that existed as of 1969 grandfathered?
- How is ordinary high water mark determined?
- Need standards that are not judgmental (e.g., objective rather than subjective).
- Seems that regulations are focused on incremental improvement, rather than no net loss
- What will be the costs to individual homeowners?
- Improvement costs are incurred by the property owners based on unfunded mandate from the State—the State isn't bearing the costs. Onus of improvements has been placed solely on property owners.
- Will the SMP provide public access through private properties that have existing agreements with the City?
- Concerned about ambiguous setbacks, loss of property due to erosion, and loss of equity as potential building footprint is diminished.
- Are there studies that show the percentage of the problem that is due to water quality and impacts from erosion and runoff?
- 
- How will storm damage or fire emergency repair be addressed?
- Will there be credit given for “no net loss” (e.g. already have a natural shoreline, have reduced dock, etc.) and want to put in a new improvement?
- Concerned about the science/studies—does Watershed Company have a conflict of interest as they give advice and also provide service?
- Requested additional meetings, but want opportunity to dialogue with policymakers
- Don't want the Planning Commission recommendations to Council to go beyond State mandates.
- Can the City Council retract its resolution supporting WRIA 8 planning and implementation?

[Type text]

ATTACHMENT 4  
PC 3/12/09

Paul Stewart, Deputy Director of Planning, then proposed a follow-up meeting with a smaller group of citizens, a few Planning Commission members, and staff. The purpose of this meeting would be to go further into detail regarding the concerns raised and discuss in more detail various options that could be considered as the process goes forward. A few participants suggested the meeting not be limited to a small group. Paul gave out his e-mail address ([pstewart@ci.kirkland.wa.us](mailto:pstewart@ci.kirkland.wa.us)) and asked participants to volunteer via e-mail within the next two weeks. The number of people at a follow up meeting will be determined thereafter.

The formal meeting adjourned at 12:05 p.m. Staff remained to talk to citizens informally and answer their questions.

**City of Kirkland  
Shoreline Master Program (SMP) Workshop  
Agenda**



**Purpose:** to talk with shoreline property owners about the potential impacts on property use of the Shoreline Master Program draft regulations

**Meeting Goals:**

- To inform shoreline property owners about the draft regulations, including potential impacts on property use
- To hear the community's thoughts about key issues including setbacks, protection structures, incentives and other ideas
- To identify next steps to provide this feedback to the Planning Commission in its deliberations for a balanced Shoreline Master Program

Time	Topic
10:00 a.m.	Welcome <ul style="list-style-type: none"> <li>• Welcome from the Mayor</li> <li>• Facilitator reviews meeting goals, ground rules and agenda</li> </ul>
10:10 a.m.	SMP Review <ul style="list-style-type: none"> <li>• Background of SMP</li> <li>• Provisions of draft regulations, including potential impacts</li> <li>• Key issues about which citizens have voiced concerns (setbacks, piers &amp; bulkheads)</li> <li>• Q &amp; A</li> </ul>
10:50 a.m.	Conversations on Key Issues <ul style="list-style-type: none"> <li>• Are there areas of concern in addition to those just discussed?</li> <li>• Small group conversations:               <ul style="list-style-type: none"> <li>○ What are your concerns? Why?</li> <li>○ What thoughts do you have about alternatives that might work?</li> <li>○ What thoughts do you have about incentives that might encourage people to alter/remove bulkheads?</li> </ul> </li> </ul>
11:30 a.m.	Large Group Report out of conversations
11:50 a.m.	Next Steps <ul style="list-style-type: none"> <li>• Suggested actions to work with the ideas raised today</li> </ul>
Noon	Adjourn



 **SHORELINE MASTER PROGRAM UPDATE** 

**Shoreline Master Program (SMP)  
Workshop**

**February 28, 2009**

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 **SHORELINE MASTER PROGRAM UPDATE** 

**Objectives for Update**

- 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 investments along and near the shoreline.
- SMP 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.
- Meet State SMP mandates.

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 **SHORELINE MASTER PROGRAM UPDATE** 

**SHORELINE MANAGEMENT ACT (SMA)**  
RCW 90.58  
To prevent harm caused by uncoordinated and piecemeal development of the state's major shorelines.

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**Shoreline Master Program Guidelines**  
WAC 127-26

↓

**Shoreline Master Program (SMP)**  
Carries out provisions of SMA  
Must be approved by Dept. of Ecology,  
using policy of RCW 90.58.020 and  
Guidelines as approval standards/criteria

Note: SMP is a State-based regulation which we have less control over compared to typical zoning provisions

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 **SHORELINE MASTER PROGRAM UPDATE** 

Major **required elements** of SMP:

- Shoreline Inventory and Characterization
- Shoreline Goals and Policies
- Shoreline Environment Designations
- Shoreline Regulations
- Cumulative Impacts Analysis
- Restoration Plan

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 **SHORELINE MASTER PROGRAM UPDATE** 

Some of the **aspects required to be regulated** by the SMP:

- Bulk, dimensions & location of structures
- Site planning
- Vegetation conservation
- Shoreline stabilization
- Docks and moorage
- Public view corridors and public trails

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 **SHORELINE MASTER PROGRAM UPDATE** 

Some **Key Changes**:

- Implementing "no net loss" of ecological functions
- Shoreline Setbacks
- Shoreline Vegetation
- Shoreline Stabilization
- Piers

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 **SHORELINE MASTER PROGRAM UPDATE** 

**Chinook Salmon Conservation Plan**  
recommendations:

- **Riparian/shoreline buffers** should be increased to the extent practicable.
- Encourage **salmon friendly shoreline design** during new construction and redevelopment.
- Offer **incentives** and **regulatory flexibility** to shoreline property owners.
- Support **education and demonstration** programs.
- Apply shoreline restoration, appropriate use of pesticides, native landscaping, etc. in parks, street ends, and other **publicly owned property**.

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 **SHORELINE MASTER PROGRAM UPDATE** 

**Goal:**  
Determine a setback standard that appropriately balances:

- Ecological functions,
- Use of property, and
- Takes into account existing development patterns.

**Proposed Approach to Setbacks:**  
Review existing built conditions.  
Proposed standard = existing median setback.

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 **SHORELINE MASTER PROGRAM UPDATE** 

**Existing development patterns:**

- Structures are, on average, built farther back from lake than required.
- Tremendous variability in lot & development conditions.
  - Residential – L (low-density):
    - Median existing setback of 42.5 feet
    - 35% of average parcel depth
  - Residential M/H (medium and high density):
    - Median existing setback of 24 feet
  - Urban Mixed
    - Median existing setback of 29 feet

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 <b>SHORELINE MASTER PROGRAM UPDATE</b> 		
Shoreline Environment	Existing Shoreline Standards <sup>1</sup>	Proposed Shoreline Standards
Residential – L	15', 15% of average parcel depth, or average of adjoining lots, whichever is greater	Conceptual: Min, 30' or 35% of average lot depth to max. 60'
Urban Mixed	15' or 15% of average parcel depth, or average of adjoining residences	Under review, increases anticipated
Residential – M/H	15' or 15% of average parcel depth, whichever is greater	Under review, increases anticipated

<sup>1</sup> Note: No Net Loss relates to existing functions, not existing standards.

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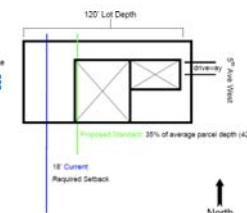
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 <b>SHORELINE MASTER PROGRAM UPDATE</b> 	
<p>Existing Single Family Setback in Market St. Neighborhood (Residential – L Designation)</p> <p>Lot Depth Group of 100' – 150' (median setback – 39.8')</p> <p>38.25' Existing Setback</p>  <p>120' Lot Depth</p> <p>38.25' Existing Setback</p> <p>Proposed Setback: 35% of average parcel depth (42')</p> <p>18' Current Required Setback</p> <p>North ↑</p>	<p>Example diagram of proposed setback versus existing standard.</p> <p>Average Lot Depth = 120 feet to private access drive</p> <p>35% of average parcel depth = 42' setback</p>

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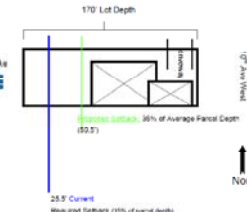
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 <b>SHORELINE MASTER PROGRAM UPDATE</b> 	
<p>Existing Single Family Setback in Market St. Neighborhood (Residential – L Designation)</p> <p>Lot Depth Group of ~150' (median setback – 74.9')</p> <p>74.9' Existing Setback</p>  <p>170' Lot Depth</p> <p>74.9' Existing Setback</p> <p>Proposed Setback: 35% of Average Parcel Depth (59.5')</p> <p>25.5' Current Required Setback (15% of parcel depth)</p> <p>North ↑</p>	<p>Example diagram of proposed setback versus existing standard.</p> <p>Average Lot Depth = 170 feet to public road</p> <p>35% of average parcel depth = 59.5' setback</p>

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 **SHORELINE MASTER PROGRAM UPDATE** 

**Regulatory Flexibility**

- Provide **regulatory flexibility** in exchange for improvement in ecological functions
  - Setback reductions
  - Other of interest to property owners?
- Permit improvements within setback (e.g. decks, pathways, etc.)
- Explore other areas of flexibility:
  - Reductions in other required yards
  - Other of interest to property owners?

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 **SHORELINE MASTER PROGRAM UPDATE** 

**Shoreline Vegetation**

Vegetation provides number of benefits to shoreline ecology

- Filter sediment and chemicals from runoff
- Provide food and shelter for fish and wildlife
- Stabilize banks
- Slow or prevent shoreline erosion.



Waterfront Construction

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 **SHORELINE MASTER PROGRAM UPDATE** 



**Goal:**  
Establish or preserve vegetation along the shoreline edge to contribute to ecological functions.

**Proposed Approach:**  
Establish new standard for shoreline buffer of native plants (avg. 10' in width). Allow variations.

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 **SHORELINE MASTER PROGRAM UPDATE** 

**Shoreline Stabilization**

Review of key **State** provisions:

- **Protection of single-family residences**
- **Allow only where necessary**
- Existing primary structure **must be in danger from erosion** (not upland erosion)
- Danger = **geotechnical analysis** showing damage is likely within 3 yrs.
- **Allow bulkhead replacement if there is demonstrated need.**
- **Soft approaches must be used unless demonstrated not to be sufficient.**
- **Limit to minimum size**

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 **SHORELINE MASTER PROGRAM UPDATE** 

**Ecological impacts of shoreline stabilization**  
(WAC 173-26-231(3)(a))

- Decrease natural gravel recruitment
- May cause excessive erosion on non-bulkheaded properties
- “Wave bashing” effect
- Decreases complex habitat
- Increases habitat for predators (bass/sculpin)

**Soft engineering** (vegetation enhancement, upland drainage control, strategic placement of gravel/cobble/boulders/logs) typically has smaller impacts than hard engineering (riprap, bulkheads).




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 **SHORELINE MASTER PROGRAM UPDATE** 

**Chinook Salmon Conservation Plan**  
recommendations:

- **Reduce bank hardening.**
- Recognize that **softening and removal of bulkheads** is the most important action to improve shoreline habitat.
- Better **assess needs for bulkheads.**
- Support development of federal/state/local specifications and **streamlined permitting for salmon friendly bulkheads.**
- Offer **incentives** to shoreline property owners to voluntarily remove bulkheads.
- Support **education and demonstration programs.**

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**SHORELINE MASTER PROGRAM UPDATE**

**Goals:**

- Ensure protection of property from erosion.
- Improve shoreline ecological functions.
- Enhance habitat for salmon
- Respond to new State requirements.
- Provide consistency with state and federal permitting.



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**SHORELINE MASTER PROGRAM UPDATE**

**Proposed regulations:**

- New/replacement bulkheads permitted if necessary.
  - Danger from erosion.
  - Geotechnical analysis. Some waivers proposed.
- Existing bulkhead may be replaced if demonstrated need.
- Soft approaches unless demonstrated to be insufficient.
- Minimize size of structures.
- Minimize and mitigate for new impacts.
- Soft shoreline projects may extend waterward of ordinary high water.

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**SHORELINE MASTER PROGRAM UPDATE**

**Shoreline Armoring Alternatives in Kirkland**



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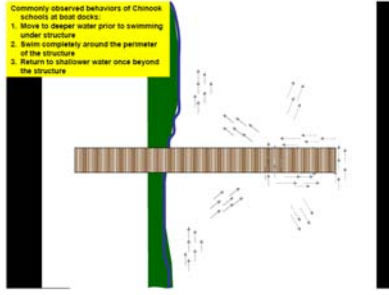
**SHORELINE MASTER PROGRAM UPDATE**

### How do traditional piers impact salmon?

- Inhibit juvenile migration
- Sharp shade lines
- Shading inhibits aquatic vegetation
- Predator habitat (piles and cover)
- Nearshore habitat is compromised

Commonly observed behaviors of Chinook schools at boat docks:

1. Move to deeper water prior to swimming under structure
2. Swim completely around the perimeter of the structure
3. Return to shallower water once beyond the structure



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**SHORELINE MASTER PROGRAM UPDATE**

### Chinook Salmon Conservation Plan recommendations:

- Minimize overwater structures
- Support interagency development of pier specifications (RGP-3)
- Use of mesh surfaces/community docks

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**SHORELINE MASTER PROGRAM UPDATE**

### Pier Design Alternatives

- Width reduction
- Grated decking
- Increase height off water
- Extend ells to deeper water
- Elevated nearshore walkways
- Longer pile spans
- Reduce pile size and number



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 **SHORELINE MASTER PROGRAM UPDATE** 

**Goals:**

- Provide for recreational use along shoreline.
- Respond to new State requirements.
- Improve shoreline ecological functions.
- Enhance habitat for salmon.
- Provide consistency with state and federal permitting.

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 **SHORELINE MASTER PROGRAM UPDATE** 

**Proposed Approach to Pier Standards:**

- For new piers:
  - Be consistent with federal standards that allow for streamlined review (RGP-standards)
  - Provide flexibility to reach sufficient water depth
  - Respond to State guidelines to minimize size of structures
  - Minimize and mitigate for new impacts to extent feasible
- For replacement:
  - Be flexible to respond to alternatives that can be negotiated with federal agencies
- For enlargements:
  - Respond to State guidelines to minimize size of structures
  - Avoid, minimize and mitigate for new impacts to extent feasible
- For repairs:
  - Use newer materials that are designed to minimize impacts
  - Clarify what is a repair activity

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 **SHORELINE MASTER PROGRAM UPDATE** 

**Implications of Key Changes to SMP:**

- Stricter standards in response to State requirements
- Use of incentives, where possible, to initiate improvements in shoreline conditions
- Improved consistency with federal and state standards
- Improved habitat and water quality over time
- Enhance existing shoreline stewardship

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 **SHORELINE MASTER PROGRAM UPDATE** 

**Clarifications:**

- Requires balance of shoreline development with the preservation of shoreline ecology - interested in exploring different approaches that can meet these two objectives
- Changes apply to City property as well as private property
- City would like to set example
- Standards would apply when you are pursuing certain activities on your property, not retroactively

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 **SHORELINE MASTER PROGRAM UPDATE** 

ANY QUESTIONS?

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## **SHORELINE MASTER PROGRAM UPDATES**

### **SCIENCE AND GREEN SHORELINES**

The SMP update processes being conducted by the local governments on Lake Washington are leading to policies and regulations calling for removal of hardened shorelines and replacement with beaches; shoreline landscaping intended to provide shade, while at the same time requiring modification of piers to reduce shading; the reduction of piers, both in size and number; and placement of woody debris along the shoreline. The result will be the expenditure of millions of dollars by shoreline property owners and taxpayers. It also results in loss of usable shoreline and uplands by both private property owners as well as park users.

The drivers behind this are guidance and directives from the Department of Ecology and WRIA 8 taken from research and studies with the focus on salmon habitat. Even though DOE is requiring local governments to use “all available technical and scientific information” and to “solicit additional information through the public participation process”, the body of science and research is not complete, contains suppositions and hypotheses, is sometimes contradictory, and cannot be applied broadly to all shoreline locations on Lake Washington. WRIA 8 has identified the Kirkland shoreline as a Tier 1 Migratory Corridor, but have studies been conducted to support that?

### **SCIENCE AND ITS DEFICIENCIES**

#### **VETTING OF SCIENCE**

A number of researchers have been studying Lake Washington for many years. Their studies have found their way into a body of knowledge that is widely used, yet a vetting process for these studies and research is yet to be reported. If these studies are to be the basis for actions that will cost millions of dollars, it is reasonable to expect that a vetting process be conducted. An example is the vetting of science developed for the Columbia River. Here the Northwest Power Planning Council has implemented an Independent Science Review Board to review all studies that are being utilized. With so much at stake a similar process should be invoked for the Lake Washington studies.

#### **AREA SPECIFIC STUDIES – WHERE DO THE FISH TRAVEL?**

The DOE Guidance Fall 2008 cites one study which “focuses on the affects of shoreline alterations to salmon migration” implying its applicability to all parts of Lake Washington and Lake Sammamish.<sup>1</sup> Yet this study was conducted for Cedar River Chinook salmon at the south end of Lake Washington. A close reading of the study and its conclusions shows considerable unanswered questions.

There are several other studies which are also specific to the Chinook at the south end of Lake Washington and one documents their migration along the western shore of Lake Washington past Seward Park to the Ship Canal.<sup>2 3</sup> These localized studies are being used in SMP update processes as a basis for actions elsewhere on the lake, far away from the migratory route that these Chinook utilize, and these fish are the majority of Chinook found in Lake Washington.

As to where fish travel in other parts of Lake Washington, here are excerpts from other studies:

The distribution of juvenile Coho salmon in Lakes Washington and Sammamish **is poorly understood.**<sup>4</sup>

“...small numbers of Chinook salmon spawn in several tributaries to Lake Washington and Lake Sammamish but juvenile production from these streams **is unknown.**”<sup>5</sup>

“**However little research has been conducted** to understand habitat use or finer-scale movement patterns of juvenile Chinook salmon during their migratory phase in late-May, June, and July.”<sup>6</sup>

**Not much information is known** about the habitat use of Coho salmon and steelhead in Lake Washington.<sup>7</sup>

Outmigration behaviors of sockeye, Coho, and steelhead **have not been studied** in Lake Washington.<sup>8</sup>

Juvenile Chinook in the North Lake Washington population are less shoreline-oriented than juveniles from the Cedar River. **More information is needed** about the trajectories of NLW juvenile Chinook in Lake Washington, particularly when they move offshore.<sup>9</sup>

#### EFFECTS OF PIERS AND BULKHEADS ON SALMON

Study Excerpts:

**No studies were located that specifically investigated** the effects of piers and armored shorelines on the migration of juvenile Chinook and Coho salmon along lakeshores.<sup>10</sup>

**The question remains** whether juvenile salmonids in lakes migrate under, or otherwise utilize, piers, or if they avoid them and/ or traverse their perimeter.<sup>11</sup>

Behavior at each structure appears to depend on a variety of factors...although these are based primarily on **anecdotal observation.** (example of non-scientific hypotheses)<sup>12</sup>

Additionally, juvenile Chinook salmon may be attracted to boat ramps due to the docks in between the boat ramps **which may provide some overhead cover.**<sup>13</sup>

The substrate and slope are similar along this shoreline and it is unclear why Chinook salmon prefer the north part over the south part. One possibility is that the north sites are close to a **pier which may provide overhead cover** if needed.<sup>14</sup>

The result is that **resource managers are challenged** to recommend and implement Chinook salmon conservation strategies in Lake Washington with few references to unaltered lacustrine habitats, and an **incomplete understanding** of how alterations to the Lake Washington ecosystem affect juvenile Chinook salmon.<sup>15</sup>

Shoreline processes of Lake Washington have been changed by the regulated maximum one foot rise and fall of the lake. (Regulated at the Locks) Therefore **the removal of bank hardening structures may not be sufficient to create sandy beaches...**<sup>16</sup>

Studies of the relationship between shoreline armoring and predation on juvenile Chinook or Coho salmon in Lake Washington and Lake Sammamish **were not found.**<sup>17</sup>

**While no direct links were identified** between predation and bulkheads, an intuitive connection exists. (This is an example of subjective or hypothetical conclusions found throughout many of the studies)<sup>18</sup>

## SHORELINE VEGETATION, WOODY DEBRIS, AND BEACHES

Study Excerpts:

**Very few fish are found with cobble and larger substrates.**<sup>19</sup> (This is significant because in many shoreline areas containing bulkheads, the replacement beaches would have to consist of cobbles and larger materials because sand will wash away in the first storm. Extensive beach restoration which must protect property from erosion would require cobble and larger granular material.)

The pattern of woody debris use is **somewhat unclear.**<sup>20</sup>

Overall results indicated that there was **no difference** in the abundance of Chinook salmon between shoreline sections with small woody debris and sections without woody debris.<sup>21</sup>

## WATER QUALITY

None of the studies listed report on water quality, yet this is fundamental to the health of all aquatic life. The WRIA 8 document develops a hierarchy for tributary streams and lists Juanita Creek (doesn't mention Forbes Creek) as a Tier 3 subarea. The actions for this category are enhancing water quality and hydrologic integrity.<sup>22</sup> Thus for Kirkland, it would seem that the focus should be on storm water runoff and non-point pollution for tributary areas.

## UNANSWERED QUESTIONS

The excerpts shown above confirm the issues facing the science underlying the SMP update processes. In addition, there are other questions raised by these studies. A comprehensive list is found in the literature search conducted by The Watershed Company for the city of Bellevue (Reference 4). Page 49 of this report contains 13 unanswered questions which should be reviewed by all local government policy makers. And, to further the body of science, they should be answered.

## **GREEN SHORELINES**

There is another driver and that is a movement that has a push-pull relationship with the SMP update processes. It is called Green Shorelines. Other terms associated with this are salmon friendly, ecologically friendly, soft engineering, soft shorelines, alternative shoreline design, and living shorelines. It is a broad concept, applied to the entire shoreline of Lake Washington in a "one size fits all" way. As yet, it doesn't recognize the physical differences along the lake shoreline, exposure to storm driven waves and boat wakes, fish migratory patterns, extent of existing or potential fish habitat, or other unique characteristics.

Green Shorelines presumes that the restoration envisioned will achieve the goal of improved habitat and support salmon recovery. It also presumes that current scientific studies are sufficient to support and justify the goals for alternatives to shoreline hardening and justify the millions of dollars of expenditures to achieve them.

There is also an aesthetic component, typified by a number of comments lamenting the urbanization of Lake Washington beginning with the construction of the Ship Canal and the Locks and the lowering of the lake and the developments along the shoreline over the years.

A publication titled "Green Shorelines; Bulkhead alternatives for a healthier Lake Washington" has been prepared by the City of Seattle. It cites habitat restoration as a prime objective and provides resource information for bulkhead replacement.

Nowhere in all of this is any recognition of the DOE Guideline that it is not the intent of the SMP update process to restore the shoreline to predevelopment conditions.

## SHORELINE PROPERTY OWNERS' PERSPECTIVES

There is no group more interested and concerned about the health and ecology of Lake Washington than shoreline property owners. Furthermore there is no group that has more site specific knowledge about the lakeshore and the waters surrounding it than these property owners. For these reasons the criteria that support future actions must be well founded and credible.

Owners will support credible programs with these criteria:

- Attain measurable environmental benefits
- Feasible and practical
- Cost effective
- Fair and equitable
- Not impose hardships
- Not impose risks to property or homes
- Avoid unintended consequences
- Based on sound science that is reviewed and vetted

There is a widespread belief among shoreline property owners that the credibility of the SMP update processes and the Green Shoreline movement is hampered by the lack of several of these criteria, a most significant being vetted science.

## HOW TO RESPOND TO THESE DEFICIENCIES AND QUESTIONS?

Policy makers must consider the scientific basis for driving the SMP policies and resulting regulations and determine if it is sufficient or not. The DOE Guidance states:

Ultimately, local government elected officials must consider all of the information put before them, including opposing views and opinions, judge their credibility and decide what standards best achieve SMP guidelines requirements, **given local circumstances**.

If it is determined that the science is not adequate or applicable as a basis for a local government's SMP update process, several options are available.

The first is to join with the other local governments on Lake Washington to put in place a vetting process for the science that is being used to support the SMP update processes. This effort should be led by the Department of Ecology and coordinated with the other regulatory agencies so that the end result is endorsed by all.

Second, further studies should be conducted to answer the questions still remaining, the most significant ones being those contained in the Literature Search mentioned above. The vetting process would likely raise additional questions and concerns.

Third, studies should be conducted that are site specific to a local government's shoreline so that actions can be implemented that will insure real environmental benefit. A key issue is where do salmon migrate, to

what extent to they utilize a local government's shoreline? It is not enough to say, 'It seems Chinook are all over the lake'.<sup>23</sup> One example of a site specific study is the Movement and Habitat Use study that was conducted for Chinook coming from the Cedar River to the Ship Canal (Reference 5). This study follows the rationale of the site specific requirement being imposed on private shoreline property owners who must provide an engineering report to justify the retention of bulkheads to protect their property.

The fourth option is to waive the scientific deficiencies and base the SMP updates on policies and regulations which would be focused mostly on esthetics and a hopeful outcome for habit improvement.

**In any event, now is the time for policy makers to fully understand the extent and applicability of the body of scientific knowledge that exists and make a determination as to which pathway forward to follow.**

In the meantime, the real and serious issues of stormwater runoff and non-point pollution, true threats to fish habitat, continue.

Prepared by Richard Sandaas  
Shoreline Property Owner  
February 27, 2009

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<sup>1</sup> R. A. Tabor and R. M Piaskowski, 2002. Nearshore Habitat Use by Juvenile Chinook Salmon to Lentic Systems of the Lake Washington Basin. Annual Report, 2001. U.S. Fish and Wildlife Service, Lacey, WA.

<sup>2</sup> R. A. Tabor, J. A. Schuerer, H. A. Gearn, and E. P. Bixler. 2004. Nearshore Habitat Use by Juvenile Chinook Salmon to Lentic systems of the Lake Washington Basin. Annual Report, 2002. U.S. Fish and Wildlife Service, Lacey WA.

<sup>3</sup> Multiple Contributors. 2008. Synthesis of Salmon Research and Monitoring. Seattle Public Utilities, U.S. Army Corps of Engineers

<sup>4</sup> T. Kahler, M. Grassley, and David Beauchamp, 2000. A Summary of the Effects of Bulkheads, Piers, and Other Artificial Structures and Shorezone Development on ESA-listed Salmoids in Lakes. City of Bellevue. Page 9

<sup>5</sup> Mark T. Celedonia, R. A. Tabor, S. Sanders, D. W. Lantz, and I. Grettenberger, 2008. Movement and Habitat Use of Chinook Salmon Smolts and Two Predatory Fishes in Lake Washington and the Lake Washington ship Canal. U. S. Fish and Wildlife Service, Lacey, WA. Page 1

<sup>6</sup> Ibid, Page 3

<sup>7</sup> Multiple Contributors, Synthesis, Page 41

<sup>8</sup> Ibid, Page 45

<sup>9</sup> Chapter 4: Chinook Conservation Strategy for WRIA8, Page 32

<sup>10</sup> Kahler, A Summary of the Effects, Page 43

<sup>11</sup> Ibid, Page 44

<sup>12</sup> Celedonia, Movement and Habitat, Page 2

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- 13 Tabor, Nearshore Habitat, 2001, Page 49
- 14 Tabor, Nearshore Habitat, 2004, Page 29
- 15 Celedonia, Movement and Habitat, Page 1
- 16 Chapter 4: Chinook, Pages 32 and 33
- 17 Kahler, A Summary of the Effects, Page 36
- 18 Ibid, Page 36
- 19 Multiple Contributors, Synthesis, Page 40
- 20 Tabor, Nearshore Habitat, 2004, Page 52
- 21 Ibid, Page 12
- 22 Chapter 4: Chinook, Pages 25 and 26
- 23 R. A. Tabor, Comments, November 18, 2008, Chinook salmon usage of Kirkland shorelines



## CITY OF KIRKLAND

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### MEMORANDUM

**To:** Paul Stewart, Deputy Planning Director

**From:** Oskar Rey, Assistant City Attorney

**Date:** March 5, 2009

**Subject:** Bulkhead Regulations

#### I. Background Facts

This Memo is in response to an inquiry from the Planning Commission regarding the extent of the City's legal authority to require removal of bulkheads along Lake Washington. The Planning Commission is in the process of reviewing the City's Shoreline Master Program ("SMP") and will be making recommendations to the Kirkland City Council on an updated SMP to comply with the requirements of the State of Washington. One possible recommendation under consideration involves the removal of bulkheads when a certain threshold of construction activity or redevelopment occurs on the subject property. The policy idea is that the City should be gradually working towards removing some of the armor and hard surfaces that line the Lake Washington shoreline. This memo assesses the extent of the City's ability to require bulkhead removal and concludes that requiring bulkhead removal as a condition of approval of upland development is legally problematic.

There are a high number of bulkheads in the developed portions of the Lake Washington shoreline in Kirkland. The Department of Ecology requires that a city's SMP provide for, at a minimum, "no net loss of ecological functions."<sup>1</sup> In other words, implementation of a SMP should result in the overall ecological condition of a city's shoreline remaining the same or improving over time.

The State Department of Ecology (DOE) staff, in conversations with City staff, has indicated that "no net loss of ecological functions" is a minimum standard for local governments to follow. From DOE's standpoint, the City is not precluded from adopting shoreline regulations that surpass the "no net loss" standard in terms of protection and improvement of the ecological function of the shoreline. However, DOE has pointed out that there are constitutional limitations on what the City can require from property owners. In particular, substantive due process and the takings doctrine represent an upper limit of what the City can require with respect to bulkhead removal.

The Planning Commission's question, as I understand it, relates to the ability of the City to require bulkhead removal at the time of significant development or redevelopment on the upland portion of a shoreline property. In most cases, this will arise in the context of reconstruction or the substantial remodel of a single family residence. In order to understand the limitations on the City in this regard it is necessary to summarize the legal restrictions that impact the ability of the City to require bulkhead removal.

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<sup>1</sup> Washington Administrative Code ("WAC") 173-26-201(2)(c).

## II. Legal Analysis

Under both the federal and state constitutions, private property may not be taken for public use without just compensation.<sup>2</sup> The takings doctrine applies to more than just physical appropriations of private property by a government entity. It can also extend to the land use permitting process when a property owner or developer asserts that a regulation constitutes a “regulatory taking” of his or her property. Similarly, both the federal and state constitutions prohibit government entities from enacting regulations that violate a property owners substantive due process rights. Under substantive due process, a development regulation must serve a legitimate public purpose and not be unduly oppressive on the property owner.

### A. The Takings Doctrine

There are two categories of regulatory takings—*per se* or categorical takings and non-categorical takings. To determine if there is a *per se* taking, the court determines whether the regulation: (1) deprives the property owner of all economically viable use of the property;<sup>3</sup> or (2) deprives the property owner of a fundamental attribute of property ownership;<sup>4</sup> or (3) results in a physical invasion of the property. If the regulation does, then a taking has occurred. However, it does not appear that regulations requiring bulkhead removal in connection with development activity would constitute a taking under any of these three bases.

There are two situations in which a regulation can operate as a non-categorical taking. The first test applies to regulations that require the dedication of land or the payment of fees in the course of the development process. Such requirements are required to be related and proportional to a condition or problem caused by the proposed development. This is what is referred to as the “nexus” requirement.<sup>5</sup> In the U.S. Supreme Court case of Dolan v. City of Tigard,<sup>6</sup> the applicant sought to expand an existing store and pave a parking lot. The City of Tigard required the applicant to dedicate a “public greenway” easement to help minimize flooding of a nearby creek and a bicycle and pedestrian path easement to minimize traffic congestion. The Court agreed that flood control and reduction of traffic congestion were legitimate government interests.

However, it went on to rule that the City of Tigard had not established the required nexus between its permit requirements and the conditions or problems that would result from the proposed development. With respect to the floodplain easement, the Court found it would have been appropriate for the City of Tigard to require the developer to execute a covenant that it would not build in the portion of its property located in a floodplain. However, it ruled that the City went too far in requiring a public greenway easement that also would have allowed the public to make recreational use of the land: “It is difficult to see why recreational visitors trampling along petitioner’s floodplain easement are sufficiently related to the city’s legitimate interest in reducing flooding problems along Fanno Creek, and the city has not attempted to make any individualized determination to support this part of its request.”<sup>7</sup> Similarly, the Court found that while the city had an interest in reducing traffic connection, there was not a sufficient nexus between dedication of a bicycle and pedestrian path easement and the impacts from the proposed development.

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<sup>2</sup> United States Constitution, Fifth Amendment; Washington State Constitution, Art. I, section 16.

<sup>3</sup> See Lucas v. South Carolina Coastal Council, 505 U.S. 1003, 112 S.Ct. 2886, 2899 (1992) (property owner entitled to compensation when critical areas ordinance deprived owner of all economically beneficial use of the property).

<sup>4</sup> Fundamental attributes of property ownership include the right to possess, exclude others from and dispose of property. Guimont v. Clark, 121 Wn.2d 586, 595, 854 P.2d 1 (1993).

<sup>5</sup> Dolan v. City of Tigard, 512 U.S. 374, 114 S.Ct. 2309 (1994); Nollan v. California Coastal Commission, 483 P.2d 825, 107 S.Ct. 3141 (1987).

<sup>6</sup> 512 U.S. 374, 114 S.Ct. 2309 (1994)

<sup>7</sup> Dolan, 512 U.S. at 393.

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Courts have traditionally used the nexus test to assess whether requiring dedication of property or payment of development fees constitutes a regulatory taking.<sup>8</sup> Therefore, at this point, a city could argue that a bulkhead removal requirement does not implicate the nexus test because it does not involve the dedication of property or the payment of fees in lieu of dedication. However, in some recent cases, Washington courts have shown an inclination to expand the scope of the nexus test.<sup>9</sup> As a result, it is possible that a court would view a bulkhead removal condition as a form of development “exaction” that would trigger the nexus requirement.<sup>10</sup>

## **B. RCW 82.02.020**

RCW 82.02.020 also requires that development conditions be reasonably related to impacts of the proposed development. The requirements of RCW 82.02.020 are statutory, not constitutional, but its requirements significantly parallel the constitutional nexus requirement. RCW 82.02.020 requires that a city may not impose “any fee, tax or charge, whether direct or indirect,” on a broad range of development activity. RCW 82.02.020 authorizes dedication of land or easements within the proposed development which a city can establish is reasonably necessary as a direct result of the proposed development. It also authorizes payment of fees in lieu of dedication if certain requirements are met.

Although RCW 82.02.020, by its terms, seems to apply only to development conditions that require dedication of land or payments of fees in lieu of dedication, Washington courts have interpreted it broadly. For example, in Isla Verde International Holdings, Inc. v. City of Camas,<sup>11</sup> the Washington Supreme Court struck down a regulation requiring a developer to set aside 30% of the subject property as open space although there was no requirement that the developer dedicate or encumber the open space. The Court found that there was no showing that setting aside open space was necessary to mitigate an impact of the development.<sup>12</sup>

Similarly, in Citizens’ Alliance for Property Rights v. Sims,<sup>13</sup> the Court ruled that a King County ordinance that prohibited the clearing of up to 50% of property in rural areas violated RCW 82.02.020 even though the ordinance did not require dedication of property interest. It is noteworthy that the ordinance in Sims was a zoning ordinance of general application that is not necessarily triggered by a development application. Nevertheless, the Court invalidated the ordinance under RCW 82.02.020. It found that King County had established a connection between the problem (excessive clearing) and the solution (an ordinance limiting clearing), but that it failed to assess the impacts of the proposed development or use of the individual properties affected by the ordinance.<sup>14</sup>

The City Attorney’s Office is of the view that RCW 82.02.020 should be applicable only to dedication or the set-aside of property or to fees paid in lieu of dedication. However, given the trend towards expansive interpretations of RCW 82.02.020, it is quite possible that a Washington Court would apply the provisions of RCW 82.02.020 to an ordinance requiring bulkhead removal.

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<sup>8</sup>See, e.g., Sparks v. Douglas County, 127 Wn.2d 931, 934 P.2d 738 (1995) (dedication of right of way met the Dolan nexus test).

<sup>9</sup>See, e.g., Isla Verde International Holdings, Inc. v. City of Camas, 146 Wn.2d 740, 49 P.3d 867 (2002) (finding a lack of a reasonable relationship between an open space set aside requirement and the impact of the proposed development).

<sup>10</sup>United Development Corp. v. City of Mill Creek, 106 Wn.App. 681, 26 P.3d 943 (2001) (City improperly required installation of drainage improvements when development did not create the need for the improvements).

<sup>11</sup> 146 Wn.2d 740, 49 P.3d 867 (2002).

<sup>12</sup> Isla Verde, 146 Wn.2d at 762.

<sup>13</sup> 145 Wn.App. 649, 187 P.3d 786 (2008).

<sup>14</sup> Sims, 145 Wn.App. at 669-70.

### C. Substantive Due Process

A three part test is used to establish whether a regulation violates the substantive due process clause of the constitution. A court must determine: (1) whether the regulation is aimed at achieving a legitimate public purpose; (2) whether it uses means that are reasonably necessary to achieve that purpose; and (3) whether the regulation is unduly oppressive on the landowner.<sup>15</sup> In this case, the removal of bulkheads will likely meet the legitimate public purpose requirement. Although state law shows some tolerance for bulkheads, especially in connection with single family residences,<sup>16</sup> the removal of bulkheads serves significant environmental goals.

Washington courts have shown a tendency to either analyze the second and third part of the test together or simply focus on the third part of the test.<sup>17</sup> Indeed, these two elements of the test are interrelated because whether the means used by a regulation are reasonably necessary will impact the question of whether the regulation is unduly oppressive on a property owner.

In assessing whether a regulation is unduly oppressive, the Washington courts focus on several factors: the nature of the harm to be avoided, the availability and effectiveness of less drastic measures and the economic loss suffered by the property owner.<sup>18</sup> In addition, courts address additional factors from the relative perspectives of both the property owner and the public. On the public side, the Court gives consideration to the seriousness of the public problem, the extent to which the owner's land contributes to it, the degree to which the regulation solves it, and the feasibility of less oppressive solutions.<sup>19</sup> On the property owner's side, the court considers factors such as the amount and percentage of property value lost; the extent of remaining use; the past, present and future uses; the temporary or permanent nature of the regulation; the extent to which the owner should have anticipated the regulation; and the feasibility of the owner altering present or future planned uses.<sup>20</sup>

The role of the Shoreline Management Act (SMA) must also be taken into account. Unlike the Growth Management Act, which requires cities to protect critical areas such as wetlands and streams,<sup>21</sup> the SMA adopts more of a balancing approach in which cities are required to accommodate potentially competing uses of the shoreline.<sup>22</sup> In particular, the SMA anticipates the need for the protection of the shoreline of single family residences. While reducing the number of bulkheads and other forms of armor along the shoreline is an appropriate City goal, the SMA anticipates that some protection of private property—especially single family residences—is required.<sup>23</sup>

A causal link between reconstruction or remodeling of a single family residence and the need to replace a bulkhead would need to be established. If a residence is to be reconstructed, with no proposed modification to the bulkhead, it will be difficult for the City to establish how the need to replace the bulkhead arises from the proposed redevelopment of the property. Even if the lot coverage of the new

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<sup>15</sup> Guimont v. Clarke, 121 Wn.2d 586, 854 P.2d 1 (1993); Peste v. Mason County, 133 Wn.App. 456 (2006).

<sup>16</sup> The SMA calls for management of shorelines in a way that balances potentially competing interests such as environmental considerations and private property rights. RCW 90.58.100(6). With respect to private property, the Shoreline Management Act requires the SMP to contain standards governing the protection of single family residences from shoreline erosion, including bulkheads.

<sup>17</sup> Guimont, 121 Wn.2d at 610 (“To assist in determining whether these means used by the Act are reasonably necessary in all regards, we must turn to the third due process question, that of undue oppression”); Weden v. San Juan County, 135 Wn.2d 678, 706-07, 958 P.2d 273 (1998) (focusing on whether a ban of motorized personal water craft from certain waters was unduly oppressive).

<sup>18</sup> Presbytery of Seattle v. King County, 114 Wn.2d 320, 331, 787 P.2d 907 (1990); Peste, 133 Wn.App. at 475.

<sup>19</sup> Presbytery, 114 Wn.2d at 331; Peste, 133 Wn.App. at 475.

<sup>20</sup> Presbytery, 114 Wn.2d at 331; Peste, 133 Wn.App. at 475.

<sup>21</sup> RCW 36.70A.060(2).

<sup>22</sup> RCW 90.58.020.

<sup>23</sup> RCW 90.58.100(6).

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residence is larger than the old one,<sup>24</sup> there are probably less burdensome methods of mitigating the impact of the additional lot coverage.

A possible alternative to requiring bulkhead removal as a condition of redevelopment is to require bulkheads to be removed or modified when a property owner seeks to substantially alter the shoreline itself. For example, if a property owner seeks to replace a bulkhead or similar shoreline structure because it is reaching the end of its useful life, the City could appropriately require the property owner to bring the replacement structures into compliance with current development standards. Such an approach will be less burdensome on property owners because it would require a property owner to bring shoreline structures into compliance with current shoreline regulations at a time when the existing structures need to be replaced.<sup>25</sup>

The fact that Kirkland's shorelines are heavily developed also impacts the extent to which the City can require bulkhead removal under the SMA. The SMA places a heavy emphasis on preserving shorelines that are in a natural condition. For example, in a very recent case, property owners sued the City of Bainbridge Island for denying their application for a private dock.<sup>26</sup> The property was located on the only harbor on Bainbridge Island that was not substantially developed. In an effort to preserve the relatively undeveloped character of the shoreline, the City's SMP authorized a limited number of community docks, but prohibited private docks. The court, placing special emphasis on the fact that the harbor was undeveloped, upheld the private dock prohibition under the SMA. It found that the purpose of the private dock prohibition was to "protect the aesthetic, navigational, and recreational values that would be diminished by multiple docks in the harbor."<sup>27</sup>

In contrast to the Bainbridge Island case, Kirkland has had a heavily developed shoreline for decades. While this does not prevent the City from adopting regulations that would improve the shoreline habitat, it is required to balance the interests of shoreline property owners in the course of doing so. It will be less burdensome on property owners, and less problematic from a legal standpoint, for the City to require bulkheads and similar structures to be brought into compliance with current regulations when a property owner seeks to replace or substantially modify such structures. It appears that many other cities take this approach.<sup>28</sup>

### III. Conclusion

There are a number of legal arguments that a property owner could raise if the City attempted to require bulkhead removal in connection with development activity on the upland portion of the property. However, most the legal arguments will stem from one fact: that there needs to be a reasonable relationship between remodeling or replacement of a residence and the requirement to replace a bulkhead. Whether a court views it as a taking, violation of substantive due process or violation of RCW 82.02.020, it would likely find that requiring bulkhead removal is not warranted in connection with upland development activity. However, bulkheads and other forms of armoring can be required to be brought into compliance with current standards when a property owner seeks to replace or substantially modify them.

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<sup>24</sup> Most waterfront lots in Kirkland are relatively small and heavily regulated, so it is not a foregone conclusion that new houses will take up more lot area than old ones. New houses may take up more square footage than the old ones if a multi-story house replaces a one-story house.

<sup>25</sup> On the other hand, removing bulkheads as a condition of upland development would likely be viewed as unduly oppressive if it occurred at a time when there were many years of useful life remaining for the bulkhead.

<sup>26</sup> Kelly v. Bainbridge Island, \_\_\_ Wn.2d \_\_\_, \_\_\_ P.3d \_\_\_, 2009 WL 442133 (February 24, 2009).

<sup>27</sup> Kelly, p. 14. It went on to say that "it defies logic to suggest an ordinance is unduly oppressive when it regulates only the activity which is directly responsible for the harm."

<sup>28</sup> In contrast, I am not aware of any other jurisdictions that have attempted to require bulkhead removal as a condition of development of the upland portion of the property.



Use Specific Regulations

- 83.180 Shoreline Development Standards
- 83.190 General
- 83.200 Residential Development
- 83.210 Commercial Uses.
- 83.220 Industrial Uses
- 83.230 Recreational Development
- 83.240 Transportation Facilities
- 83.250 Utilities
- 83.260 Land Division

Shoreline Development Standards

83.180 Shoreline Development Standards

1. General - Except as otherwise stated, the long range plan, zoning regulations, critical areas regulations, subdivision regulations, and other adopted regulatory provisions apply within shoreline jurisdiction. In the event the provisions of this Program conflict with provisions of other city regulations, the more protective of shoreline resources shall prevail.
2. Development Standards Chart - The following chart establishes the minimum required dimensional requirements for development. KZC Section 83.170 contains an overview of the activities permitted under each of the use classifications contained in the development standards chart. Additional standards may be established in Sections 83.190 through 83.260. Dimensional standards specified in this Chapter shall not exceed the geographic limit of the shoreline jurisdiction.

SHORELINE DEVELOPMENT STANDARDS

83.180. 3

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	Natural	Urban Conservancy	Residential - L	Residential - M/H	Urban Mixed
<b>Residential Uses</b>						
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: <ul style="list-style-type: none"> <li>5,000 sq. ft. if located on east side of Lake St S, at 7<sup>th</sup> Ave S; and</li> <li>7,200 sq. ft. if subject to the Historic Preservation provisions of KMC 22.28.048</li> </ul>	3,600 sq. ft.	3,600 sq. ft.
Shoreline Setback	n/a			<a href="#">Thirty-five (35) % of the average parcel depth, except in no case is the shoreline</a>		

SHORELINE ENVIRONMENT						
DEVELOPMENT STANDARDS	Aquatic	Natural	Urban Conservancy	Residential - L	Residential - M/H	Urban Mixed
				<a href="#">setback permitted to be less than 30 feet or required to be greater than 60 feet.</a>		
Maximum Lot Coverage	n/a	50%	n/a	50%	60%	80% except for the following: <ul style="list-style-type: none"> <li>In the CBD, 100% for properties that do not abut Lake Washington; otherwise 90%</li> </ul>
Maximum Height of Structure <sup>3</sup>	n/a	25' above ABE <sup>1</sup>	If adjoining the Residential-L Shoreline Environment, then 25' above ABE. Otherwise, 30' above ABE.	25' above ABE	If adjoining the Residential-L Shoreline Environment, then 25' above ABE. Otherwise, 30' above ABE.	30' above ABE
<b>Other Residential Uses (Attached, Stacked, and Detached Dwelling Units; Assisted Living Facility; Convalescent Center or Nursing Home)</b>						
Density <sup>2</sup>	n/a	n/a	n/a	n/a	1,800 sq. ft./unit for up to 2 dwelling units if the public access provisions of KZC 83.370 are met; otherwise 3,600 sq.	No minimum lot size in CBD; otherwise 1,800 sq. ft./unit

<sup>1</sup> Structure height may be increased to 30' above ABE. See KZC 83.180.6.c.1)a).

<sup>2</sup> For density purposes, two assisted living units shall constitute one dwelling unit.

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	Natural	Urban Conservancy	Residential - L	Residential - M/H	Urban Mixed
Shoreline Setback	n/a	n/a	n/a	n/a	ft./unit	
Maximum Lot Coverage	n/a	n/a	n/a	n/a	80%	80% except for the following: <ul style="list-style-type: none"> <li>In the CBD, 100% on properties that do not abut Lake Washington; otherwise 90%</li> </ul>
Maximum Height of Structure <sup>3</sup>	n/a	n/a	n/a	n/a	30' above ABE <sup>4</sup>	30' above ABE, except for the following: <ul style="list-style-type: none"> <li>In the JBD, 28' above ABE if located on west side of 98<sup>th</sup> Avenue NE; otherwise 39' above ABE<sup>7</sup></li> <li>In the CBD, 28' above the abutting right-of-way measured at the midpoint of the frontage of the subject property if located on west side of Lake St S and north of 2<sup>nd</sup> Ave S; 41' above the abutting</li> </ul>

<sup>3</sup> The height limit is restricted to that portion of the building physically located within the shoreline jurisdiction and applies to landward structures only. Permitted increases in building height are addressed in KZC 83.180.6.c).

<sup>4</sup> Structure height may be increased to 35' above ABE. See KZC 83.180.6.c.1)b).

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT						
	Aquatic	Natural	Urban Conservancy	Residential - L	Residential - M/H	Urban Mixed	
						right-of-way measured at the midpoint of the frontage of the subject property <sup>7</sup> <ul style="list-style-type: none"> <li>In the PLA 15A zone located south of NE 52<sup>nd</sup> Street, structure height may be increased to 40' above ABE.<sup>5,7</sup> Otherwise, mixed-use developments approved under a Master Plan shall comply with the Master Plan provisions.<sup>6</sup></li> </ul>	
<b>Commercial Uses</b>							
Minimum Lot Size	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Shoreline Setback	n/a	n/a		n/a			
Maximum Lot Coverage	n/a	n/a	50%	n/a	80%	80% except for the following:	<ul style="list-style-type: none"> <li>In the CBD, 100% on properties that do not abut Lake Washington; otherwise 90%</li> </ul>

<sup>5</sup> See KZC 83.180.6.c.1)c).

<sup>6</sup> See KZC 83.180.6.c.1)d).

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	Natural	Urban Conservancy	Residential - L	Residential - M/H	Urban Mixed
Maximum Height of Structure <sup>3</sup>	n/a	n/a	If adjoining the Residential-L Shoreline Environment, then 25' above ABE. Otherwise, 30' above ABE. <sup>4</sup>	n/a	30' above ABE <sup>4</sup>	<p>30' above ABE, except for the following:</p> <ul style="list-style-type: none"> <li>In the JBD, 28' above ABE if located on west side of 98<sup>th</sup> Avenue NE; otherwise 39' above ABE<sup>7</sup></li> <li>In the CBD, 28' above the abutting right-of-way measured at the midpoint of the frontage of the subject property if located on west side of Lake St S and north of 2<sup>nd</sup> Ave S; 41' above the abutting right-of-way measured at the midpoint of the frontage of the subject property if located on west side of Lake St S and south of 2<sup>nd</sup> Ave S<sup>7</sup>; otherwise 55' above the abutting right-of-way<sup>7</sup></li> <li>In the PLA 15A zone located south of NE 52<sup>nd</sup></li> </ul>

<sup>7</sup> Structure heights above 35' above ABE shall comply with the provisions contained in KZC Section 83.180.6.a(4).

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	Natural	Urban Conservancy	Residential - L	Residential - M/H	Urban Mixed
						Street, structure height may be increased to 40' above ABE. <sup>5,7</sup> Otherwise, mixed-use developments approved under a Master Plan shall comply with the Master Plan provisions. <sup>6</sup>
<b>Industrial Uses</b>						
Minimum Lot Size	n/a	n/a	n/a	n/a	n/a	n/a
Shoreline Setback	n/a	n/a	n/a	n/a	n/a	
Maximum Lot Coverage	n/a	n/a	n/a	n/a	n/a	80% except for the following: <ul style="list-style-type: none"> <li>In the CBD, 100% on properties that do not abut Lake Washington; otherwise 90%</li> </ul>
Maximum Height of Structure <sup>3</sup>	n/a	n/a	n/a	n/a	n/a	30' above ABE, except for the following: <ul style="list-style-type: none"> <li>In the JBD, 28' above ABE if located on west side of 98<sup>th</sup> Avenue NE; otherwise 39' above ABE</li> <li>In the CBD, 28' above the abutting right-of-way measured at the midpoint</li> </ul>

DEVELOPMENT STANDARDS		SHORELINE ENVIRONMENT						
		Aquatic	Natural	Urban Conservancy	Residential - L	Residential - M/H	Urban Mixed	of the frontage of the subject property if located on west side of Lake St S and north of 2 <sup>nd</sup> Ave S; 41' above the abutting right-of-way measured at the midpoint of the frontage of the subject property if located on west side of Lake St S and south of 2 <sup>nd</sup> Ave S'; otherwise 55' above the abutting right-of-way.
<b>Recreational Uses</b>								
Minimum Lot Size	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Shoreline Setback	n/a				<u>Thirty-five (35) % 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.</u>			
Maximum Lot Coverage	n/a	10%	30%	30%	30%	80%	80%	80% except for the following:

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	Natural	Urban Conservancy	Residential - L	Residential - M/H	Urban Mixed
Maximum Height of Structure <sup>3</sup>	n/a	25' above ABE	If adjoining the Residential-L Shoreline Environment, then 25' above ABE. Otherwise, 30' above ABE <sup>4</sup>	25' above ABE	30' above ABE <sup>4</sup>	<ul style="list-style-type: none"> <li>In the CBD, 100% on properties that do not abut Lake Washington; otherwise 90%</li> </ul>
						<ul style="list-style-type: none"> <li>30' above ABE, except for the following:                             <ul style="list-style-type: none"> <li>In the JBD, 28' above ABE if located on west side of 98<sup>th</sup> Avenue NE; otherwise 39' above ABE</li> <li>In the CBD, 28' above the abutting right-of-way measured at the midpoint of the frontage of the subject property if located on west side of Lake St S and north of 2<sup>nd</sup> Ave S; 41' above the abutting right-of-way measured at the midpoint of the frontage of the subject property if located on west side of Lake St S and south of 2<sup>nd</sup> Ave S<sup>7</sup>; otherwise 55' above the abutting right-of-way<sup>7</sup></li> </ul> </li> </ul>

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	Natural	Urban Conservancy	Residential - L	Residential - M/H	Urban Mixed
<b>Institutional Uses</b>						
Minimum Lot Size	n/a	n/a	n/a	n/a	n/a	n/a
Shoreline Setback	n/a	n/a				
Maximum Lot Coverage	n/a	n/a	50%	50%	80%	80% except for the following: <ul style="list-style-type: none"> <li>In the CBD, 100% on properties that do not abut Lake Washington; otherwise 90%</li> </ul>
Maximum height of structure <sup>3</sup>	n/a	n/a	If adjoining the Residential-L Shoreline Environment, then 25' above ABE. Otherwise, 30' above ABE <sup>4</sup>	25' above ABE	30' above ABE <sup>4</sup>	30' above ABE, except for the following: <ul style="list-style-type: none"> <li>In the JBD, 28' above ABE if located on west side of 98<sup>th</sup> Avenue NE; otherwise 39' above ABE<sup>7</sup></li> <li>In the CBD, 28' above the abutting right-of-way measured at the midpoint of the frontage of the subject property if located on west side of Lake St S and north of 2<sup>nd</sup> Ave S; 41' above the abutting right-of-way measured at</li> </ul>

DEVELOPMENT STANDARDS		SHORELINE ENVIRONMENT					
		Aquatic	Natural	Urban Conservancy	Residential - L	Residential - M/H	Urban Mixed
							the midpoint of the frontage of the subject property if located on west side of Lake St S and south of 2 <sup>nd</sup> Ave S <sup>7</sup> ; otherwise 55' above the abutting right-of-way <sup>7</sup>
<b>Transportation</b>							
Minimum Lot Size		n/a	n/a	n/a	n/a	n/a	n/a
Shoreline Setback		n/a			Thirty-five (35) % 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.		
Maximum Lot Coverage		n/a	n/a	n/a	n/a	n/a	n/a
Maximum Height of Structure <sup>3</sup>		n/a	n/a	n/a	n/a	n/a	n/a
<b>Utilities</b>							
Minimum Lot Size		n/a	n/a	n/a	n/a	n/a	n/a

DEVELOPMENT STANDARDS		SHORELINE ENVIRONMENT					
		Aquatic	Natural	Urban Conservancy	Residential - L	Residential - M/H	Urban Mixed
Shoreline Setback		n/a			<u>Thirty-five (35) % 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.</u>		
Maximum Lot Coverage		n/a	5%	30%	50%	80%	80% except for the following: <ul style="list-style-type: none"> <li>In the CBD, 100% on properties that do not abut Lake Washington; otherwise 90%</li> </ul>
Maximum Height of Structure <sup>3</sup>		n/a	25' above ABE	If adjoining the Residential-L Shoreline Environment, then 25' above ABE. Otherwise, 30' above ABE <sup>4</sup>	25' above ABE	30' above ABE <sup>4</sup>	30' above ABE, except for the following: <ul style="list-style-type: none"> <li>In the JBD, 28' above ABE if located on west side of 98<sup>th</sup> Avenue NE; otherwise 39' above ABE<sup>7</sup></li> <li>In the CBD, 28' above the abutting right-of-way measured at the midpoint</li> </ul>

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	Natural	Urban Conservancy	Residential - L	Residential - M/H	Urban Mixed
	of the frontage of the subject property if located on west side of Lake St S and north of 2 <sup>nd</sup> Ave S; 41' above the abutting right-of-way measured at the midpoint of the frontage of the subject property if located on west side of Lake St S and south of 2 <sup>nd</sup> Ave S'; otherwise 55' above the abutting right-of-way.					

3. Calculation of Minimum Lot Size or Density –
- a. May not use lands waterward of the ordinary high watermark to determine lot size or to calculate allowable 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 would only be partially located within the shoreline jurisdiction, the City may approve an increase in the actual number of units in the shoreline jurisdiction, as permitted under the density standards established in subsection b) above, provided that the equivalent square footage of all of the units within the shoreline jurisdiction, based upon the average unit size in the proposed on the subject property, is no greater than could be achieved under the maximum permitted density.
  - 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 0.66.
  - 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.
4. 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 ordinary high water mark on the horizontal plane and in the direction that results in the greatest dimension from the ordinary high water mark (see Plate XX).
    - 2) In those instances where the OHWM moved further upland in accordance with permits involving a shoreline habitat and natural systems enhancement project approved by the City or a state or federal agency, the shoreline setback shall be measured from the location of the ordinary high water mark that existed immediately prior to the enhancement project.
  - 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, provided that they are constructed and maintained in a manner that minimizes adverse impacts on shoreline functions and processes:
    - 1) Walkways, benches, and similar features, as determined by the Planning Official, which are part of the public pedestrian access required under KZC 83.370.
    - 2) Walkways within the shoreline setback that provide private access to the shoreline are permitted, subject to the following standards:
      - a) The maximum width of the walkway corridor may be no more than 25 percent of the property's lake frontage, except in no case is the corridor required to be less than 15 feet in width (see Plate XX).
      - b) The shoreline access shall be located to avoid areas of greater ecological and habitat value.

- c) The walkway shall be constructed of a permeable walking surface, such as unit pavers, grid systems, porous concrete, or equivalent material approved by the Planning Official.
  - d) The walkway corridor may contain minor improvements such as garden sculpture, 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 walkways and any view corridor requirements under KZC Section 83.360. Light fixtures approved under this subsection shall comply with the provisions contained in KZC 83.240.
- 3) Those portions of water-dependent development that require improvements adjacent to the water's edge.
  - 4) Public access facilities or other similar public water-enjoyment recreational uses.
  - 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 ordinary high water mark.
  - 8) Bay windows, greenhouse windows, eaves, cornices, awnings, and canopies may extend up to 18 inches into the shoreline setback, subject to the limitations of this section. Eaves on bay windows may extend an additional 18 inches beyond the bay window. Chimneys that are designed to cantilever or otherwise overhang are permitted. The total horizontal dimension of the elements that extend into the shoreline setback, excluding eaves and cornices, may not exceed 25 percent of the length of the facade of the structure.
  - 9) Decks, patios, and similar improvements may extend up to 5 10 feet into the shoreline setback but no closer than 25 feet to the ordinary high water mark, subject to the following standards:
    - a) The feature 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 elements that extend into the shoreline setback may not exceed 25 percent of the length of the facade of the structure.
    - c) The improvement may not extend more than 18- inches above finished grade.
  - 10) Retaining walls and similar structures that are no more than four feet in height above finished grade. The structure shall be designed so that it does not interfere with the shoreline vegetation required to be installed under the provisions of KZC 83.350. These structures shall not be installed to provide the function of a shore erosion control structure unless approved under the provisions of KZC 83.280.
  - 40)11) \_\_\_\_\_ In the Urban Mixed shoreline environment, balconies at least 15 feet above finished grade may extend up to 4 feet into the shoreline setback.
  - 44)12) \_\_\_\_\_ Bridges and other essential public facilities that must cross shorelines.
  - 42)13) \_\_\_\_\_ Parking as authorized by the Planning Official under the provisions of KZC 83.400.3.

~~13)14)~~ Shoreline stabilization measures approved under the provisions of KZC 83.280.

5. Maximum Lot Coverage –

a. General –

- 1) The area of all structures and pavement and any other impervious surface on the subject property will be calculated as a percentage of the lot area located within the shoreline jurisdiction.
- 2) If the subject property contains more than one use, the maximum lot coverage requirements for the predominant use will apply.
- 3) In those instances where the OHWM moved further upland in accordance with permits involving a shoreline habitat and natural systems enhancement project approved by the City, or a state or federal agency, the lot area for purposes of calculating lot coverage shall be measured from the location of the ordinary high water mark that existed immediately prior to the enhancement project.

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

6. Height Regulations –

a. General –

- 1) KZC 83.180.3, Development Standards Chart, establishes the maximum allowed building height for all primary and accessory structures.
- 2) If the subject property contains more than one use contained within a building, the maximum height standard for the predominant use will apply to the building.
- 3) Maximum building height shall be measured from an average building elevation (ABE), calculated under the methods described in KZC 115.59 and depicted in Plates 17A and 17B. In the CBD, maximum building height shall be measured from the midpoint of the abutting right-of-. For purposes of measuring building height, if the subject property abuts more than one right-of-way, the applicant may choose which right-of-way shall be used to measure the allowed height of structure, except that alleys shall be excluded.
- 4) Pursuant to RCW 90.58.320, no permit may be issued for any new or expanded building or structure more than 35 feet above average grade level that will obstruct the view 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 of 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 B as described in KZC 115.59 and depicted in Plate 17B.

b. Exceptions –

- 1) No element or feature of a structure, other than the appurtenances listed below, may 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 will not be significantly blocked.
  - a) Antennas, chimneys, and similar appurtenances, but not including personal wireless service facilities, which are subject to the provisions of Chapter [117](#) KZC.

- b) Rooftop appurtenances and their screens.
  - c) Decorative parapets or peaked roofs approved through design review pursuant to Chapter 142 KZC, except that these height exceptions shall not result in a structure that exceeds 28 feet above the abutting right-of-way on the west side of Lake St S and north of 2<sup>nd</sup> Ave S.
- c. Permitted Increases in Height – The following permitted increases in height shall be reviewed by the City as part of the shoreline permit required for the proposed development activity.
- 1) The maximum structure height established in KZC 83.180.3, Development Standards Chart, may be increased in the following circumstances:
    - a) In the Natural shoreline environment, the structure height of a detached dwelling unit may exceed the standard height limit, when approved with a shoreline conditional use permit, by a maximum of 5 feet over average building elevation in order to reduce the footprint of the building which lessens the impact on a sensitive area and sensitive area buffer. The City shall include in the written decision any conditions and restrictions that the City determines are necessary to eliminate or minimize any undesirable effects of approving the exception.
    - b) 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:
      - i) Obstruction of views from existing development lying east of Lake St S 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 either
      - ii) The increase is offset by a view corridor that is superior to that required by KZC Section 83.360; or
      - iii) The increase is offset by maintaining comparable portions of the structure lower than 30 feet above average building elevation.
    - c) In the Urban Mixed shoreline environment south of NE 52<sup>nd</sup> Street, the structure height of attached or stacked dwelling units or office use may be increased to 40 feet above average building elevation if:
      - i) Obstruction of views from existing development lying east of Lake Washington Boulevard is minimized. The applicant shall be responsible for providing sufficient information to the City to evaluate potential impacts to views; and
      - ii) Maximum lot coverage is 80 percent, but shall not include any structure allowed within the required front yard under the General Regulations in KZC 60.170; and
      - iii) Maximum building coverage is 50 percent, but shall not include any structure allowed within the required front yard under the General Regulations in KZC 60.170 or any structure below finished grade; and
      - iv) A waterfront area developed and open for public use shall be provided with the location and design specifically approved by the City. Public amenities shall be provided, such as non-motorized watercraft access or a public pier. A public use easement document shall be provided to the

City for the public use area, in a form acceptable to the City. The City shall require signs designating the public use area; and

- v) No rooftop appurtenances, including elevator shafts, roof decks or plantings, with the exception of ground cover material on the roof not to exceed four inches in height, shall be on the roof of the building or within the required view corridors.
- d) Properties in the PLA 15A zone in the UM Shoreline Environment which 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.
- e) 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.

#### General Use Standards

#### 83.190 General Use Standards

1. Uses in the shoreline shall be designed, located, sized, and constructed to achieve no net loss of shoreline ecological functions. Where adverse impacts to ecological functions cannot be avoided, mitigation shall be provided to achieve no net loss of shoreline ecological functions. Failure to meet this standard may result in permit denial. The City may request necessary studies by qualified professionals to determine compliance with this standard.
2. All work at or waterward of the ordinary high water mark 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. Documentation verifying necessary state and federal agency approvals must be submitted to the City prior to issuance of a shoreline permit, including shoreline exemption. All activities within shoreline jurisdiction must comply with all other regulations as stipulated by State and Federal agencies, local Tribes, or others that have jurisdiction.
3. Uses in the shoreline shall be sited, designed, and configured in a manner that avoids the need for new shoreline stabilization or flood hazard reduction measures.
4. Uses in the shoreline shall be designed, located and managed to prevent significant adverse impacts on water quality, fish and wildlife habitat, and the environment.
5. Buildings located in the Urban Mixed Shoreline environment shall incorporate architectural features that reduce scale and apparent mass such as setbacks, pitched roofs, recesses, variety in materials, textures, pattern or color and other techniques and may be subject to the City's adopted Design Guidelines contained in Chapter 92 KZC.
6. Minimum required setbacks from shorelines, maximum height limits and lot coverage requirements are contained in KZC 83.180.
7. Special use standards are contained as notes to the Shoreline Environments, Permitted Uses and Activities Chart contained in KZC Section 83.170 as well as in the standards contained in KZC Section 83.190 through 83.270.
8. Harming, harassing, or otherwise endangering any native wildlife species within critical areas or shoreline setbacks, other than fishing under WDFW license or treaty, is prohibited, unless otherwise approved by the City.

Residential Development

83.200 Residential Development

1. General – No residential use may occur over water, including houseboats, live-aboards, or other single- or multi-family dwelling units.
2. Detached Dwelling Units - Not more than one dwelling unit may be on each lot, regardless of the size of each lot.
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.

Commercial Uses

83.210 Commercial Uses

1. Float plane landing and mooring facilities –
  - a. Use of piers 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) Fuel spill and oil spill clean-up materials and firefighting equipment commensurate with the size of the facility and use by float planes; and
    - 3) Hours of operation may be limited as necessary to limit impacts on area residents.
  - c. 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.
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 83.400.
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.
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 are provided, boats shall be removed from the water and debris shall be captured and properly disposed of.
  - 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 design of the site must be compatible with the scenic nature of the waterfront. If the development will result in the isolation of a detached dwelling unit, site design, building design, and landscaping must mitigate the impacts of that isolation.
  - b. Drive-in or drive-through facilities are prohibited.

#### Industrial Uses

##### 83.220 Industrial Uses

- 1. In addition to the perimeter buffering and fencing provisions established in KZC Chapter 95, the applicant shall screen all outdoor storage and activity areas from required public pedestrian pathways or public use areas with a minimum six-foot-high solid screening fence and perimeter buffer landscaping or other appropriate screening approved by the City.
- 2. Storage of industrial equipment or materials shall not be located within the shoreline setback.
- 3. Disposal or storage of solid or other industrial wastes is not permitted.
- 4. Hazardous materials or liquid materials shall be properly stored and contained in conformance with all applicable City, state and federal standards.

#### Recreational Uses

##### 83.230 Recreational Development

- 1. Motorized Boats -
  - a. Power-operated boats and jet skis are prohibited within restricted areas designated in Juanita and Yarrow Bays, as delineated by buoys and signage.
  - b. Power-operated boats and jet skis on Lake Washington operated within 100 yards of the any shoreline, pier, restricted area or shore installation shall not exceed the speed limits established in KMC Chapter 14.24, Operation of Watercraft.
- 2. Marina – See standards contained in KZC Section 83.270.
- 3. Piers – See standards contained in KZC Section 83.270.
- 4. Boatlifts – See standards contained in KZC Section 83.270.
- 5. Canopies – See standards contained in KZC Section 83.270.

6. 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.
    - 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 83.270.
  - c. An on-site passenger loading area must be provided. The City shall determine the appropriate size of the loading area on a case-by-case basis, depending on the capacity of the tour boat and the extent of the abutting right-of-way improvements.
  - d. Buildings and structures which house passengers, employees and equipment storage 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.
7. Moorage Buoy or Pilings – See standards contained in KZC Section 83.270.
8. Public Access Pier or Boardwalk –
  - a. Public Access Piers or Boardwalks shall be designed to prevent significant impacts to sensitive natural systems and shall prevent the net loss of ecological functions.
  - b. No accessory uses, buildings, or activities are permitted as part of this use.
  - c. If a structure will extend waterward of the Inner Harbor Line, the applicant must obtain an aquatic use authorization from Washington State Department of Natural Resources prior to submittal of a building permit for this use.
  - d. Must provide at least one covered and secured waste receptacle upland of the ordinary high water mark.
  - e. All utility and service lines located waterward of the ordinary high water mark must be below the pier deck. All utility and service lines located upland of the ordinary high water mark shall be underground, where feasible.
  - f. Piers 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. No moorage structure may be within 10 feet of a north or south property line, except that setbacks between moorage structures and north and south property lines may be decreased for over-water public use facilities which connect with waterfront public access on adjacent property; or
  - i. Moorage structures shall be separated from the outlet of a stream, including piped streams, by the maximum extent possible, 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 Section 83.270.3.b.2), except as follows:
- 1) Primary walkways and floats may be no wider than 8 feet.
9. 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.
10. Boat Launch (for motorized boats) -
- a. Location Standards –
- 1) Boat launches may not be approved in cases when it can be reasonably foreseeable 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) Boat launches shall be separated from existing swimming areas.
- b) They shall not damage fish and wildlife habitats.
- c) They shall be located only at sites with suitable transportation and access. The applicant must demonstrate that traffic generated by such a facility can be safely handled by the streets serving the boat launch.
- 3) A boat launch may not be located within 25' 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 six (6) feet below the OHWM.
- 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, local Tribes, or others that have jurisdiction.
- d. Boat launches shall provide trailer spaces, at least 10 feet by 40 feet, commensurate with projected demand.
11. Public Park - Recreation developments that support high-intensity activities as a primary use, such as sporting events, shall be located outside of shoreline jurisdiction to the extent feasible.
12. 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 and designed to prevent significant impacts to sensitive natural systems and the net loss of shoreline ecological functions.

Transportation Facilities

83.230 Transportation Facilities

1. General -

- a. Transportation facilities shall utilize existing transportation corridors whenever possible; provided, that facility additions and modifications will not adversely impact shoreline resources and are otherwise consistent with this program. If expansion of the existing corridor will result in significant adverse impacts, then a less disruptive alternative shall be utilized.
- b. 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.
- c. 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.
- d. 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 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. Maintenance activities shall be conducted in a manner that minimizes impacts to fish, wildlife, and their associated habitat and utilizes best management practices.

3. Bridges –

- a. Bridges shall meet the standards for arterials, collectors, and neighborhood access streets in subsection 6 below.

4. Passenger-only Ferry Terminal –

- a. Ferry terminals and their related parking areas shall be located, designed, constructed and operated to minimize their impacts on shoreline natural resources and systems.
- b. Buildings and structures that house pedestrian passengers, employees and equipment storage 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. Ferry terminals shall provide parking commensurate with projected demand. The Planning Official may permit the parking to be located off-site if the applicant demonstrates on submitted plans and/or in writing that the following criteria have been met:
    - 1) It is reasonable to expect that the proposed parking area will be used by the subject use.
    - 2) A safe pedestrian and/or shuttle connection exists, or will be created, between the subject use and the proposed parking area.
    - 3) Where the lot is not owned by the same person who owns the lot containing the ferry terminal, the owner of the lot containing the parking must sign a statement in a form acceptable to the City Attorney, stating that the lot is devoted in whole or in part to required parking for the ferry terminal. The applicant must file this statement with the King County Bureau of Elections and Records to run with the property.
  - f. An on-site passenger loading area must be provided. The City shall determine the appropriate size of the loading area on a case-by-case basis, depending on the capacity of the ferry and the extent of the abutting right-of-way improvements.
5. Water Taxi –
- a. Water-taxis shall be located, designed, constructed, and operated to minimize their impacts on shoreline natural resources and systems.
  - 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.
6. Arterials, Collectors, and Neighborhood Access Streets –
- 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 identify significant features along the shoreline.
- j. Landscaping 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 possible.
- k. Shoreline street ends may be used for public access or recreational purposes.
- l. Shoreline street ends may not be vacated except in compliance with RCW 35.79.035 or its successor, as well as KMC 19.16.090.

Utilities

83.240 Utilities

1. General –

- a. 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.
- b. Utilities shall be located in existing rights-of-way and utility corridors wherever feasible.
- c. New utilities may not be located waterward or the ordinary high water mark or in the Natural shoreline environment unless it is demonstrated that no feasible alternative exists
- d. 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.
- e. 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. Proposals for new water crossings must fully substantiate the infeasibility of existing routes or alternative locations.
- f. Utilities which are accessory and incidental to a shoreline use shall be reviewed under the provisions of the use to which they are accessory.
- g. Utilities shall provide screening of facilities from water bodies and adjacent properties in a manner that is compatible with the surrounding environment. Type of screening required shall be determined by the City on a case-by-case basis.
- h. Utility development shall, through coordination with local government agencies, provide for compatible, multiple use 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.
- i. Property owners possessing legal rights to water in the Lake shall be allowed to retain those water-intake valves or structures existing on the date of adoption of this Master Program which are necessary to maintain those rights.

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. Maintenance activities shall be conducted in a manner that minimizes impacts to fish, wildlife, and their associated habitat and utilizes best management practices.
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 equipment from the lake and public pedestrian pathways 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 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 Section 83.390, unless otherwise excepted or modified under the provisions of KZC 83.390.
3. Land Divisions shall establish a prohibition on new private 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 Section 83.280.
4. View corridors established as part of a land division shall be depicted on the face of the recorded document.

83.340 Shoreline Setbacks

1. Improvements permitted within the Shoreline Setback - See standards contained in KZC Section 83.180.4.
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.
  - a-b. The required shoreline setback may be reduced down to a minimum of twenty-five (25) feet when setback reduction impacts are mitigated using a combination of the mitigation options provided in the table below to achieve an equal or greater protection of lake ecological functions. The following standards shall apply to any reduced setback:
    - a-i. The minimum setback that may be approved through this provision is 25 feet. Any further setback reduction beyond that allotted in this Section shall require approval of a shoreline variance application.
    - b-ii. ~~If a development activity is required to comply with the shoreline enhancement provisions of subsection 2 above, the water related actions addressing shoreline softening below cannot be used to grant a shoreline reduction.~~
    - c-iii. All property owners who obtain approval for a reduction in the setback must comply with the best management practices contained in KZC Section 83.430.3.h addressing the use of fertilizer, herbicides and pesticides as needed to protect lake water quality.
    - iv. The City may accept removal of existing hard structural shoreline measures that were undertaken as part of a previous development activity, such as replacement of existing shoreline stabilization measures, as meeting the requirements of this section, provided that the setback reduction authorized under these provisions for that activity is applied only once on the subject property.
    - i-v. All property owners who obtain approval for a reduction in the setback must record the final approved setback and corresponding conditions 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.
  - b-c. The shoreline setback may be reduced to no less than 25 feet in all cases by the following:

**Shoreline Setback Reduction Alternatives**

Reduction Mechanism		Reduction Allowance
<b>Water Related Actions</b>		
1	Removal of an existing <del>bulkhead</del> <u>hard structural shoreline stabilization measure</u> covering at least 75 percent of the linear lake frontage which is located at, below, or within 5 feet landward of the lake's ordinary high water mark (OHWM) and subsequent restoration of the shoreline to a natural or semi-natural state, including restoration of topography, and beach/substrate composition;	Reduce required setback by 10 percentage points
2	Removal of an existing <u>hard structural shoreline stabilization measure</u> <del>bulkhead</del> covering at least 15 linear feet of the lake frontage which is located at, below, or within 5 feet landward of the lake's OHWM 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;	Reduce required setback by 7.5 percentage points
3	Opening of previously piped on-site watercourse to allow potential rearing opportunities for anadromous fish <u>for a minimum of 25 feet</u>	Reduce required setback by 5

<b>Reduction Mechanism</b>		<b>Reduction Allowance</b>
	<u>in length</u> ; Opened watercourses must be provided with a native planted buffer at least five (5) feet wide on either side of the stream, and must not encumber adjacent properties without express written permission of the adjacent property owner. Opened watercourses must be designed by a qualified professional.	percentage points
<b>Upland Related Actions</b>		
4	Installation of biofiltration/infiltration mechanisms such as bioswales, created and/or enhanced wetlands, or ponds that exceed standard stormwater requirements.	Reduce required setback by 2 percentage points
5	<del>Use of "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 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 are directed towards the lake.</del> <u>Increasing the width of the required landscape strip within the reduced shoreline setback so that the vegetated portion of the nearshore riparian area averages at least fifteen (15) feet in depth from the ordinary high water mark.</u>	Reduce required setback by 2 percentage points
6	Installation of pervious material for all pollution generating surfaces such as a driveway, parking or private road.	Reduce required setback by 2 percentage points
7	<del>Limiting the lawn area within the shoreline setback to no more than 50 percent of the reduced setback area. No more than 50 percent of the reduced setback area can be lawn.</del>	Reduce required setback by 2 percentage points
8	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

83.350 Shoreline Vegetation Management

- 1 Tree Retention. To maintain the ecological functions that trees provide to the shoreline environment, significant trees shall be retained as follows:
  - a. Tree removal on a property on which no development activity is proposed or in progress.
    - 1) Submittal Requirements – When proposing to trim or remove any tree located within the shoreline setback, the property owner must submit a a Tree Removal/Pruning Request form report to the City containing the following:
      - i. 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.
      - ii. 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.
      - iii. If removal of a significant tree in the shoreline setback area is approved by the Planning Official, a three-for-one replacement is required. The required minimum size of the replacement trees shall be six (6) feet tall for a conifer and 2-inch caliper for deciduous or broad-leaf evergreen tree. For required replacement trees, a planting plan showing location, size and species of the new trees is required.
    - 2) Standards - Within the shoreline setback, existing significant trees shall be retained unless the tree is determined to be a hazard or nuisance tree.

- iv-i. Hazard Tree Criteria. A hazard tree must meet the following criteria:
- (a) ~~The tree must have a combination of structural defects and/or disease which makes it subject to a high probability of failure and is in proximity to moderate-high frequency-of persons or property.~~ Hazard Tree Criteria is assessed by 1) the presence of a defect as an indicator of potential tree failure, and 2) the presence of a moderate to high-use target area. Low-use target areas would include those areas which are infrequently or seldom used for any great length of time, such as an overflow parking area, natural or wilderness areas, etc. Moderate use would include those areas where people move through regularly, but do not stay, such as parks, parking lots, secondary roads, etc. High-use targets would include those areas that are frequently used by people, often for longer periods of time, or high volumes of people coming and going. Examples would include pick-up/drop off areas, visitor centers, residential buildings, main arterial roads, etc.; and
  - (b) The hazard condition of the tree cannot be lessened with reasonable and proper arboricultural practices nor can the target be removed.
- v-ii. Nuisance Tree Criteria. A nuisance tree must meet the following criteria:
- (a) 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;
  - (b) Tree has been damaged by past maintenance practices, that cannot be corrected with proper arboricultural practices; or
  - (c) 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:
    - (i) Pruning of the crown or roots of the tree and/or small modifications to the site including but not limited to a driveway, parking lot, patio or sidewalk to alleviate the problem.
    - (ii) Pruning, bracing, or cabling to reconstruct a healthy crown.
- b. Tree removal on a property on which development activity is proposed or in progress.
- i. Submittal Requirements – When proposing a development activity on a lot containing trees within the shoreline setback, the following shall be required:
    - (a) 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.
    - (b) An arborist report stating the size (DBH), species, and assessment of health and determination of all trees located within the shoreline setback. This requirement may be waived by the Planning Official if it is determined that there are no trees within the shoreline setback that have the potential to be impacted by proposed development activity.
  - ii. Standards -
    - (a) 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 with 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.
    - (b) If removal of a significant tree in the shoreline setback area is approved by the Planning Official, a three-for-one replacement is required. The required minimum size of the replacement trees shall be (6) feet tall for a conifer and 2-inch caliper for deciduous or broad-leaf evergreen tree.
    - (c) 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 native species.

c. Tree Pruning - Non-destructive thinning of lateral branches to enhance views is allowed, consistent with the following standards:

- 1) The applicant must submit a Tree Removal/Pruning Request form to the City;
- 2) But in no circumstance shall removal of more than half one-third (1/3) of the original live crown be permitted;
- 3) Pruning does not include topping, stripping of branches or creation of an imbalanced canopy;
- 4) Pruning should retain branches that overhang the water to the maximum extent possible; and
- 5) Pruning does not directly impact the nearshore functions and values including fish and wildlife habitat.

e.d. Required Landscaping – To maintain the ecological functions that trees provide to the shoreline environment, significant trees shall be retained as follows:

- 1) Minimum Landscape Standard Compliance - The applicant shall plant native vegetation, as necessary, 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 ordinary high water mark, but may be a minimum of five (5) feet wide to allow for variation in landscape bed shape and plant placement. 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 must be included in the plan. Plant materials must be native and selected from the Kirkland Native Plant List.
- 2) Use of Existing Vegetation - The City may 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 landscaping. The City may require the applicant to plant trees, shrubs, and groundcover according to the requirements of this section to supplement the existing vegetation in order to provide a buffer at least as effective as the required buffer.
- 3) 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 section, and shall address the plant installation and maintenance requirements set forth in KZC Section 95.45. Plant materials shall be identified with both their scientific and common names. Any required irrigation system must also be shown.
- 4) Vegetation placement – Vegetation selection and placement shall comply with the following standards:
  - i. 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 waters of Lake Washington and the shoreline on the opposite side of the Lake at the time of planting or upon future growth.
  - ii. Vegetation may be selected and positioned to maintain private views of the water by clustering low-growing vegetation in a selected area, provided that the minimum landscape standard is met.
- 4)5) Alternative Compliance. Landscaping required by this section shall be performed in compliance with the applicable standards contained in this section, unless the applicant demonstrates that alternate measures or procedures will be equal or superior to the provisions of this section in accomplishing the purpose and intent of maintaining and improving shoreline ecological functions and processes. Requests to use alternative measures and procedures shall be reviewed by the Planning Official and City's shoreline consultant, who may approve, approve with conditions, or deny the request. The cost of producing and implementing the plan, as well as the review of the proposal by the City's consulting biologist, shall be borne by the applicant. Examples include but are not limited to:

- i. Removal of an existing bulkheadhard structural shoreline stabilization measure covering at least 15 feet of the lake frontage which is located at, below, or within 5 feet landward of the lake's OHWM and subsequent restoration of the shoreline to a natural or semi-natural state, including creation of shallow-water beach habitat and beach/substrate composition.
- ii. Setting back bulkheadhard structural shoreline stabilization measures or portions of bulkheadhard structural shoreline stabilization measures from the ordinary high water mark and subsequent restoration of the shoreline to a natural or semi-natural state, including creation of shallow-water beach habitat and beach/substrate composition.
- iii. Use of low impact development techniques that demonstrate a significant reduction to stormwater runoff from the site, including but not limited to:
  - (a) Use of pervious pavement/materials for all proposed hard surfaces, including but not limited to private driveways, patio, walkways, private roads, parking areas, and sidewalk areas;
  - (b) Reduction of total impervious surface on the subject property to a minimum of 15 percentage points less than allowed under standard lot coverage provisions;
  - (c) Direction of a minimum of 90 percent of the site's runoff to on-site biofiltration swale or raingardens;
  - (d) Use of vegetated roofs for a minimum of 70 percent of the effective roof area  
Installation of a vegetated roof in accordance with the King County Surface Water Design Manual, Low Impact Development Technical Guidance Manual for Puget Sound or equivalent resource; or
  - (e) A combination of these or similar strategies.
- iv. Placing fill material for purposes of habitat enhancement (creation or restoration of nearshore shallow-water habitat) waterward of the ordinary high water mark.
- v. Opening of previously piped on-site watercourse to allow potential rearing opportunities for anadromous fish. Opened watercourses must be provided with a native planted buffer at least five (5) feet wide on either side of the stream and a minimum 20 foot wide structure setback measured from the ordinary high water mark of the stream, and must not encumber adjacent properties without express written permission of the adjacent property owner. Opened watercourses must be designed by a qualified professional with experience in stream restoration.

5)6) Responsibility for Regular Maintenance.

- i. The applicant, landowner, or successors in interest shall be responsible for the regular maintenance of landscaping required under this section. Plants that die must be replaced in kind.
- ii. All required landscaping shall be maintained throughout the life of the development. Prior to issuance of a certificate of occupancy, the proponent shall provide a final as-built landscape plan and a recorded agreement to maintain and replace all landscaping that is required by the City.
- iii. ~~All required landscaping must be allowed to develop to its typical mature height and form. Pruning should be conducted only as needed to maintain health and vigor of the plant, and is expected to be only minimally required for native species.~~

83.360 View Corridors

1. General - Development within the shoreline area located west of Lake Washington Boulevard and Lake Street South shall include public view corridors which provides the public an unobstructed view of the water.
2. Standards -
  - a. For properties lying waterward of Lake Washington Boulevard and Lake Street South, a minimum view corridor of thirty percent of the average parcel width must be maintained. The intent of the corridor is to provide an unobstructed view from the adjacent public right-of-way

- to the waters of Lake Washington and the shoreline on the opposite side of the Lake and beyond. A view of the shoreline edge of the subject property should be provided if existing topography, vegetation, and other factors allow for this view to be retained.
- b. Properties located in the UM Shoreline Environment where view corridors have been previously established under an approved Master Plan or zoning permit approved under the provisions of Chapter 152 KZC shall comply with the view corridor requirements as approved. Modifications to the proposed view corridor shall be considered under the standards established in the Master Plan or approved zoning permit.
3. Exceptions - The requirement for a view corridor does not apply to the following:
- a. The following water-dependent uses:
    - 1) Marina, but only piers, docks, and floats and temporary storage of boats undergoing service or repair
    - 2) Piers, docks, floats, boatlifts and canopies
    - 3) Tour Boat Facility, ferry terminal or water taxi, but not including permanent structures greater than 200 square feet in size housing commercial uses ancillary to the facility
    - 4) Moorage buoy
    - 5) Public Access Pier or Boardwalk
    - 6) Boat launch
  - b. Public Parks
  - c. Properties located in the UM Shoreline Environment within the Central Business District
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 property 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) Location 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 street.
    - 4) Location of existing sight-obscuring structures, parking areas or landscaping that are 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 Lake Washington and the shoreline on the opposite side of the Lake, and beyond Lake Washington.
  - 3) Structures may be located in view corridors if the slope of the subject property permits full, unobstructed views of the waters of Lake Washington 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) Landscaping, provided it is designed not to obscure the view from the public right-of-way to the waters of Lake Washington and the shoreline on the opposite side of the Lake, and beyond Lake Washington at the time of planting or upon future growth. The Planning Official shall determine appropriate landscaping in the event of a conflict between required site screening and view preservation.
  - 6) Open fencing that is designed not to obscure the view from the public right-of-way to the waters of Lake Washington and the shoreline on the opposite side of the Lake, and beyond Lake Washington.
- b. The following shall not be permitted within a view corridor:
- 1) Structures, except as noted in subsection 5.a above.
  - 2) Sight obscuring fences.
  - 3) Landscaping that would screen the view of the shoreline at the time of planting or upon future growth.
6. Dedication - The applicant shall grant an easement or similar legal agreement, in a form acceptable to the City Attorney, and recorded with the King County Department of Records and Elections 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.

83.370 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 waterfront walkway and the public right-of-way serve to link the walkway with the larger 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 the water's edge.
  - b. Pedestrian Access From Water's Edge to Right-of-Way – Provide public pedestrian walkways designed to connect the waterfront pedestrian corridor 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 the water's edge between the development and the shoreline at an average of 10 feet but no closer than 5 feet landward of the ordinary high water mark so that the walkway may meander and not be a straight line.
  - c. The public nature of the access shall be maximized by locating the walkways adjacent to other public areas including street-ends, waterways, parks, other public access and connecting trails.
  - d. The walkways shall maximize views of the water and sun exposure.
  - e. The walkways shall be located along pedestrian-oriented facades, as defined in KZC Chapter 92, where applicable and if feasible.
  - f. The walkways shall be situated so as to minimize significant grade changes and the need for stairways.
  - g. 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.
  - h. The walkways shall be located so as to avoid undue interference with the use of the site by water-dependent businesses.
  - i. 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.
3. Development Standards Required for Pedestrian Improvements - The applicant shall install pedestrian walkways pursuant to the following standards:
- a. The walkways shall be at least six 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 which 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 – All required pedestrian walkways shall be open to the public between the hours of 10 am to 8 pm, from March 21<sup>st</sup> to September 21<sup>st</sup>. Otherwise the pedestrian walkway shall be open 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 and Modifications

- a. General – The provisions of this subsection establish under what circumstances the requirements of this section do not apply or may be modified.
- b. Exception
- 1) The requirement for the dedication and improvement of public access does not apply to:
    - a) Development located within the Residential - L shoreline environment, except as follows:
      - i) Public entities, such as a government facility or public park, located within the Residential - L shoreline environment are required to provide public access pursuant to the provisions of this section.
    - b) Development located within the Natural shoreline environment.
    - c) Individual single-family residences and normal appurtenances associated with a single-family residence that is not part of a land division. For development involving land division, public pedestrian access is required.
- c. Modifications
- 1) The Planning Official may require or grant a modification to the nature or extent of any required improvement for any of the following reasons:
    - a) If the presence of critical areas such as wetlands, streams, or geologically hazardous areas preclude the construction of the improvements as required.
    - b) To avoid interference with the operations of water-dependant uses, such as marinas.
    - c) If the property contains unique characteristics, such as size, configuration, topography, or location.
    - e)d) If the access would create unavoidable health or safety hazards to the public.
  - 2) 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.
  - 3) Access from the right-of-way to the waterfront walkway may be waived by the Planning Official if the following applies:
    - a) If public access along the waterfront of the subject property can be reached from an adjoining property, and
    - b) If the adjoining property providing access to the waterfront 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; and

- c) 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.

83.380 Standards for In-Water Activity

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. Projects involving in-water work must obtain all applicable state and federal permits, including those from the U.S. Army Corps of Engineers, Washington Department of Ecology, and Washington Department of Fish and Wildlife.
  - d. Projects involving in-water work shall comply with timing restrictions as set forth by state and federal project approvals.
  - e. Removal of existing structures shall be accomplished so the structure and associated material does not re-enter the lake.
  - f. Waste material such as construction debris, silt, excess dirt or overburden resulting from in-water structure installation shall be deposited above the ordinary high water mark in an approved upland disposal site.
  - g. Extreme care shall be taken to ensure that no petroleum products, hydraulic fluid, fresh 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.
  - h. In-water work shall be conducted in a manner that causes little or no siltation to adjacent areas. A sediment control curtain shall be deployed in those instances where siltation is expected. The curtain shall be maintained in a functional manner that contains suspended sediments during project installation.
  - i. Any trenches, depressions, or holes created below the ordinary high water mark shall be backfilled prior to inundation by high water or wave action.
  - j. 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.
  - k. 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.
  - l. All trash and unauthorized fill, including concrete blocks or pieces, bricks, asphalt, metal, treated wood, glass, and paper, below the ordinary high water mark shall be removed and deposited above the ordinary high water mark in an approved upland disposal location.
  - m. If at any time, as a result of in-water work, fish are observed to be in distress or killed, or water quality problems develop, immediate notification shall be made to the Washington Department of Ecology.

83.390 Miscellaneous Standards

1. Screening of Storage and Service Areas

- a. Outdoor Use, Activity and Storage. Outdoor Use, Activity and Storage areas must comply with the following:
  - 1) Comply with the shoreline setback established for the use with which they are associated.
  - 2) Be located to minimize visibility from any street, Lake Washington, required public pedestrian walkway, public use area or public park.
  - 3) 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.
  - 4) 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 subsection (2) and (3) above.
- b. Mechanical and similar equipment or appurtenances.
  - 1) At-grade mechanical and similar equipment or appurtenances are not permitted within the shoreline setback.
  - 2) Rooftop appurtenances and at or below grade appurtenances shall be screened with landscaping 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.
- c. Garbage and trash receptacles. Garbage and recycling receptacles must comply with the following:
  - 1) Comply with the shoreline setback established for the use with which they are associated.
  - 2) Be located to minimize visibility from any street, Lake Washington, required public pedestrian walkway, public use area or public parks.
  - 3) 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.
  - 4) 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 receptable, are exempt from the placement and screening requirements of this section.

2. Design Standards -

- a. 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:
  - 1) Buildings are designed with windows that orient toward the shoreline.
  - 2) Buildings are designed to incorporate outdoor areas such as decks, patios, or viewing platforms that orient toward the shoreline.
  - 3) Buildings are designed with entrances along the waterfront façade and with connections between the building and required public pedestrian walkways.
  - 4) Service areas are located away from the shoreline.

- 5) Site planning includes public use areas along waterfront public pedestrian walkways, if required under the provisions established in KZC 83.370, which will encourage pedestrian activity, including but not limited to:
  - i) Permanent seating areas;
  - ii) Landscaping, including trees to provide shade cover; and
  - iii) Trash receptacles.
- 6) Exemptions – The following are exempt from the requirements of subsection 2.a:
  - a) Non-water oriented commercial and recreational uses which are located on the east side of Lake Washington Blvd. NE/Lake Street or on the east side of 98<sup>th</sup> Avenue NE.
  - b) Non-water oriented commercial and recreational uses where there is an intervening development between the shoreline and the subject property are exempt from the requirements of subsection (3) and (5) above.
- b. Buildings located along the shoreline shall not incorporate materials which are reflective or mirrored.

#### 83.400 Parking

##### 1. General -

- a. Only parking associated with a permitted or conditional shoreline use shall be allowed, except that within the UM Shoreline Environment, surface or structured parking facilities may accommodate parking for surrounding uses and for-pay parking is allowed.
- b. Parking as a primary use on a subject property is prohibited.

##### 2. Number of Parking Spaces -

- a. All uses must provide sufficient off-street parking spaces. The required number of parking stalls established in KZC Chapter 105, KZC 50.60 and in the applicable use zone charts shall be met.

##### 3. Parking Location -

- a. Intent – To reduce the negative impacts of parking and circulation facilities on visible 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 83.350. 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 landscaping.
      - iii) The structure is designed to minimize impacts to public access and views to Lake Washington 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 landscaping and/or building surface treatment to provide an appearance comparable to the rest 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. General
    - 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, minimally, composed of a different material from the parking lot.
    - 2) Pedestrian connections must be at least five 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 that are visible from required public pedestrian pathways 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 that is visible from a required view corridor, or is facing a public pedestrian walkway, public use area, or public park must incorporate landscaping and/or building surface treatment to mitigate the visual impacts of the structured parking.

#### 83.410 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. 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, provided that:
      - a) 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.
      - b) 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.

- c) The sign shall be affixed to a pier or wall-mounted. The maximum permitted height of a freestanding sign is five feet above the surface of the pier. A wall-mounted sign shall not project above the roofline of the building to which they are attached.
  - 2) Boat traffic signs, directional signs and signs displaying a public service message installed by a governmental agency.
  - 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.
- c. Signs shall comply with the shoreline setback standards contained in KZC 83.180.

83.420 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 glare-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 submission and lighting standards established in this section:
    - 1) Development of a detached dwelling unit or associated appurtenances;
    - 2) Emergency lighting required for public safety;
    - 3) Lighting for public rights-of-way;
    - 4) Outdoor lighting for temporary or periodic events (e.g. community events at public parks);
    - 5) Seasonal decoration lighting; and
    - 6) Sign lighting, which is governed by KZC 83.410.
  - b. The following development activities are exempt from the submission standards established in this section (3) below, but are still subject to the lighting standards contained in (4) below:
    - 1) Development of a detached dwelling unit or associated appurtenances;
    - ~~7)2)~~ Piers, docks, floats, boatlifts and canopies;
    - ~~8)3)~~ Public Access Pier or Boardwalk; and
    - ~~9)4)~~ Moorage buoy.
3. Submission Requirements - All development proposed 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, which 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 illuminance 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 –
    - ~~40)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 and direct the light toward the ground. For detached dwelling unit or associated appurtenances, this requirement shall apply to the any light fixtures which are directed towards or face Lake Washington.
    - ~~41)2)~~ Exterior lighting mounted on piers or illuminating piers and water-dependent uses located at the shoreline edge shall be at ground or dock level, and be directed away from adjacent properties and the water.
    - ~~42)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 –
    - ~~43)1)~~ Exterior lighting installations shall be designed to avoid harsh contrasts in lighting levels.
    - ~~44)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.
    - ~~45)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 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.
    - ~~46)4)~~ Exterior lighting shall not exceed a strength of 1 foot-candles at the water surface of Lake Washington, as measured waterward of the ordinary high water mark.
  - 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 –
    - ~~47)1)~~ Illuminance of a building façade to enhance architectural features is not permitted.

- ~~48)2)~~ Where practical, 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.
5. Compliance – Exterior lighting in shoreline jurisdiction must be brought into compliance with the requirements of this section in any of the following situations:
- Replacement – The shielding requirements of subsection (4)(a)(1) of this section shall be complied with when any nonconforming light fixture is replaced or moved.
  - Full Compliance – All other requirements of subsection (4) of this section shall be complied with when there is an increase in gross floor area of more than 50 percent to any structure on the subject property.

83.430 Water Quality, Stormwater, and Nonpoint Pollution

- 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.
- 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:
  - Provisions for temporary erosion control measure; and
  - 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.
- Standards -
  - Shoreline development shall, at minimum, comply with the standards established in the City's adopted surface water design manual in effect at the time of permit application.
  - Shoreline uses and activities shall utilize 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. All types of BMPs require regular maintenance to continue to function as intended.
  - Low Impact Development (LID) techniques shall be considered and implemented to the greatest extent practicable. 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:
    - 1) Preservation of natural hydrology.
    - 2) Reduction of impervious surfaces.
    - 3) Treatment of stormwater in numerous small, decentralized structures.
    - 4) Use of natural topography for drainageways and storage areas.
    - 5) Preservation of portions of the site in undisturbed, natural conditions.
    - 6) Reduction of the use of piped systems. Whenever possible, site design should use multifunctional open drainage systems such as vegetated swales or filter strips which also help to fulfill landscaping and open space requirements.
    - 7) Use of environmentally sensitive site design and green building construction that reduces runoff from structures, such as green roofs.

- 8) Other low impact development techniques as approved by the Public Works Official.
- d. New outfalls or discharge pipes to Lake Washington shall be avoided, where possible. 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 ordinary high water mark.
- e. 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 such as structures and/or a manual of practices 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 multifamily residential sites and oil storage at marinas providing service and repair. Criteria for development and submittal of designs and plans for such BMPs are included in the standard plans.
- f. 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 City of Kirkland's Public Works Storm/Surface Water Division 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.
- g. 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.
- h. 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.
  - ~~1) Within the shoreline setback, application of pesticides, herbicides, or fertilizers shall be prohibited, unless specifically authorized in an approved mitigation plan or otherwise authorized in writing by the Planning Official.—~~
  - ~~2) Pesticides, herbicides, or fertilizers used outside of the shoreline setback shall be applied in a manner as to prevent their transmittal into Lake Washington. The direct runoff of chemical-laden waters into Lake Washington is prohibited.~~
  - 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 agencies, including the Washington State Department of Agriculture, Department of Ecology, Department of Fish and Wildlife or the Federal Environmental Protection Agency.
  - 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 Kirkland Planning Department prior to the application.

83.440 Critical Areas – General Standards

1. The provisions of this Chapter do not extend the shoreline jurisdiction beyond the limits specified in this SMP. 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 activity within a critical area or its associated buffer shall utilize the following mitigation sequencing guidelines, which 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 sequence of steps in subsection (2)(a)(2) through (7) of this section.
    - 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.
    - 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 utilized mitigation sequencing to avoid, minimize, and mitigate impacts to critical areas and associated buffers. The applicant should seek to avoid, minimize and mitigate overall impacts based on the functions and values of all of the 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 the KZC apply.
  - c. In determining the extent to which the proposal should 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 section as a part of the critical areas review conducted pursuant to KZC **XXX**.
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 is considered a nuisance or hazard in a critical area or its buffer, the priority action is to create a “snag” or wildlife tree with the subject tree. 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 which 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 nor can the target be removed.
    - b) Nuisance Tree Criteria. A nuisance tree must meet the following criteria:
      - i) 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) 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:
        1. Pruning of the crown or roots of the tree and/or small modifications to the site including but not limited to a driveway, parking lot, patio or sidewalk to alleviate the problem.
        2. 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 six feet in height in close proximity to where the removed tree was located. Selection of native species and timing of installation shall be coordinated with the Planning Official.
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. Seed source must be as local as possible, 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 its entry into waterways and wetlands and minimize its 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.

Note: Much of the provisions of 83.450 and 83.460 below are taken from the City's existing critical area ordinance of Chapter 90. ~~The subsections with highlighting reflect new provisions of significant revisions to the text from Chapter 90 after it was copied into the new shoreline section. Staff recommends that the Planning Commission focus on the new subsections and on the overall application of Chapter 90 to the shoreline critical areas.~~

#### 83.450 Wetlands

1. Applicability – The following provisions shall apply to wetlands and wetland buffers located within the shoreline jurisdiction, in replace 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, which 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 (which 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. 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 subsection (2) of this section.

- 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 wetland 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 which 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 90.40 to determine the appropriate buffer width. Ecology's rating system and the corresponding buffers only apply to those wetlands and buffers which are located in shoreline jurisdiction.]

a.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 report, if applicable, by the City's wetland consultant. 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 two (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. 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 83.450.4 through 83.460.10. See also KZC 83.440, Trees in Critical Areas or Critical Area Buffers; and KZC 83.440, 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
<b>Category I</b>	
Natural Heritage Wetlands	215 feet
Bog	215 feet
Habitat score <sup>1</sup> from 29 to 36 points	225 feet
Habitat score from 20 to 28 points	150 feet

Other Category I wetlands	125 feet
<b>Category II</b>	
Habitat score from 29 to 36 points	200 feet
Habitat score from 20 to 28 points	125 feet
Other Category II wetlands	100 feet
<b>Category III</b>	
Habitat score from 20 to 28 points	125 feet
Other Category III wetlands	75 feet
<b>Category IV</b>	
	50 feet

<sup>1</sup>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* <http://www.metrokc.gov/ddes/cao/PDFs04ExecProp/BAS-Chap9-04.pdf>.

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:

- ~~8~~1) Does not provide additional protection of the wetland from the proposed development; and
- ~~9~~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 10 feet from the designated or modified wetland buffer. The City may allow within this setback minor improvements which 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 Outfalls – 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 surface discharge of storm water through the buffer would clearly pose a threat to slope stability, and if the storm water outfall will not:

- ~~6~~1) Adversely affect water quality;
- ~~7~~2) Adversely affect fish, wildlife, or their habitat;
- ~~8~~3) Adversely affect drainage or storm water detention capabilities;
- ~~9~~4) Lead to unstable earth conditions or create erosion hazards or contribute to scouring actions; and
- ~~10~~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 wetland or wetland buffer by meeting the following design standards:

- ~~11~~6) Catch basins must be installed as far as feasible from the buffer boundary.
- ~~12~~7) Outfalls must be designed to reduce the chance of adverse impacts as a result of concentrated discharges from pipe systems. This may include:

1)a) Installation of the discharge end as far as feasible from the sensitive area; and

2)b) Use of appropriate energy dissipation at the discharge end.

d. d. Water Quality Facilities – Detention and water quality treatment devices, and other similar facilities as determined by the City, shall not be located within the wetland buffers or buffer setbacks of this section except as provided below. Water quality facilities, as determined by the City, may be located within the wetland buffers of subsection 85.450.4 of this section. 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 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) Its 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 9 – 12 (below) are met in addition to 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 practicable or feasible alternative proposal that results in less impact to the buffer.

e.b. Utilities and Rights-of-Way – Provided that activities will not increase the impervious area or reduce flood storage capacity, the following work may only be allowed in critical areas and their buffers subject to City review after appropriate mitigation sequencing per KZC 83.440.2 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.
- 4) All affected critical areas and buffers will 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 be located within the outer one-half 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:

83.3741) It will not adversely affect water quality;

83.3722) It will not adversely affect fish, wildlife, or their habitat;

83.3733) It will not adversely affect drainage or storm water detention capabilities;

83.3744) It will not lead to unstable earth conditions or create erosion hazards or contribute to scouring actions;

83.3755) 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

83.3766) It supports public or private shoreline access.

The City may require the applicant to submit a report prepared by a qualified professional which 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, as approved by the Planning Official and consistent with City standards, along the upland boundary of the entire wetland 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 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 -

a. 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 noted in subsection ~~b and e~~.

~~b.~~ All Wetland Modification or Wetland Buffer Modification affecting > 25% of the standard buffer require a Shoreline Variance pursuant to Process IIA, described in Chapter 141, except as follows:

~~i. Development activity or land surface modification approved under subsection 4 above (Wetland Buffers and Setbacks) or subsection 10 (Wetland Restoration) below, and~~

~~e., except for development activity or land surface modification approved under subsection 4 above (Wetland Buffers and Setbacks) or subsection 10 (Wetland Restoration) below, require a Shoreline Variance pursuant to Process IIA, described in Chapter 141.~~

2) Applicants for a detached dwelling who are unable to comply with the specific standards of this section may seek approval pursuant to the following standards and procedures:

i. When allowed - A reasonable use exception may be granted if the strict application of this section would preclude all reasonable use of a site. The reasonable use process within the shoreline management area applies to lots that are significantly

constrained by critical area and critical area buffers, but still contain a minimum of 20 percent of the land area of the subject property outside of wetlands, either in wetland buffer or as upland area.

ii. Submittal Requirements – As part of the reasonable use request, in addition to submitting an application, 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:

- a) A determination and delineation of the sensitive area and sensitive area buffer containing all the information specified in KZC 83.450(3) for a wetland or based on the definitions contained in this chapter for a stream;
- b) An analysis of whether any other reasonable use with less impact on the sensitive area and sensitive area buffer is possible;
- c) Sensitive site design and construction staging of the proposal so that the development will have the least practicable impact on the sensitive area and sensitive area buffer;
- d) A description of the area of the site which is within the sensitive area or within the setbacks or buffers required by this chapter;
- e) 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;
- f) An analysis of the impact that the amount of development proposed would have on the sensitive area and the sensitive area buffer;
- g) How the proposal minimizes to the greatest extent possible net loss of sensitive area and/or sensitive area buffer functions;
- h) Whether the improvement is located away from the sensitive area and the sensitive area buffer to the greatest extent possible;
- i) Information specified in KZC 83.450(8); and
- j) Such other information or studies as the Planning Official may reasonably require.

iii. Decisional Criteria – The City shall grant approvals for reasonable use exceptions only if all of the following criteria are met:

- a) That no permitted type of land use for the property with less impact on the sensitive area and associated buffer is feasible and reasonable, which in the Natural Environment shall be one single-family dwelling;
- b) That there is no feasible on-site alternative to the proposed activities, including reduction in size, density or intensity, phasing of project implementation, change in timing of activities, revision of road and lot layout, and/or related site planning considerations, that would allow a reasonable economic use with less adverse impacts to the sensitive area and buffer;
- c) Unless the applicant can demonstrate unique circumstances related to the subject property, the amount of site area that will be disturbed by structure placement or other land alteration, including but not limited to grading, utility installation, decks, driveways, paving, and landscaping, shall not exceed 3,000 square feet. The amount of allowable disturbance shall be that which will have the least practicable impact on the sensitive area and the sensitive area buffer given the characteristics and context of the subject property, sensitive area, and buffer;

- d) The applicant shall pay for a qualified professional to help with the City's determination of the appropriate limit for disturbance;
  - e) The proposal is compatible in design, scale and use with other legally established development in the immediate vicinity of the subject property in the same zone and with similar site constraints;
  - f) The proposal utilizes to the maximum extent possible innovative construction, design, and development techniques, including pervious surfaces, which minimize to the greatest extent possible net loss of sensitive area functions and values;
  - g) The proposed development does not pose an unacceptable threat to the public health, safety, or welfare on or off the property;
  - h) The proposal meets the mitigation, maintenance, and monitoring requirements of this chapter;
  - i) The inability to derive reasonable use is not the result of actions by the applicant after the effective date of the ordinance codified in this chapter or its predecessor; and
  - j) The granting of the exception will not confer on the applicant any special privilege that is denied by this chapter to other lands, buildings, or structures under similar circumstances.
- iv. Modifications and Conditions – The City may approve reduction in required yards or buffer setbacks and may allow the maximum height of structures to be increased up to five feet to reduce the impact on the sensitive area and sensitive area buffer. The required front yard may be reduced by up to 50 percent where the applicant demonstrates that the development cannot meet the City's code requirements without encroaching into the sensitive area buffer. The City shall include in the written decision any conditions and restrictions that the City determines are necessary to eliminate or minimize any undesirable effects of approving the exception.

~~—In the Natural Environment, applicants for a detached dwelling who are unable to comply with the specific standards of this section may seek approval pursuant to the following standards and procedures:~~

~~—Process—If the strict application of this section would preclude all reasonable use of a site, an owner of real property may apply for a reasonable use exception to this chapter.~~

~~—The application shall be considered under Process IIA of Chapter 150 KZC; provided, that for a single family development proposal which does not exceed a total of 3,000 square feet of site disturbance, and does not encroach into the sensitive area, but only the associated buffer, the application shall be considered pursuant to subsection (7) of this section, Reasonable Use Process: Administrative Alternative.~~

~~—In addition, the application shall be processed as a Shoreline Conditional Use Permit under the provisions of Chapter 141 KZC and WAC 173-27.~~

~~—Submittal Requirements—As part of the reasonable use request, in addition to submitting an application, 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:~~

~~—A determination and delineation of the sensitive area and sensitive area buffer containing all the information specified~~

~~in KZC 83.450(3) for a wetland or based on the definitions contained in this chapter for a stream;~~

~~—An analysis of whether any other reasonable use with less impact on the sensitive area and sensitive area buffer is possible;~~

~~—Sensitive site design and construction staging of the proposal so that the development will have the least practicable impact on the sensitive area and sensitive area buffer;~~

~~—A description of the area of the site which is within the sensitive area or within the setbacks or buffers required by this chapter;~~

~~—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;~~

~~—An analysis of the impact that the amount of development proposed would have on the sensitive area and the sensitive area buffer;~~

~~—How the proposal minimizes to the greatest extent possible net loss of sensitive area functions;~~

~~—Whether the improvement is located away from the sensitive area and the sensitive area buffer to the greatest extent possible; and~~

~~—Such other information or studies as the Planning Official may reasonably require.~~

~~—Decisional Criteria—The City shall grant applications for reasonable use exceptions only if all of the following criteria are met:~~

~~—That no permitted type of land use for the property with less impact on the sensitive area and associated buffer is feasible and reasonable, which in a residential zone shall be one single family dwelling and in a commercial or industrial zone shall be an office use;~~

~~—That there is no feasible on-site alternative to the proposed activities, including reduction in size, density or intensity, phasing of project implementation, change in timing of activities, revision of road and lot layout, and/or related site planning considerations, that would allow a reasonable economic use with less adverse impacts to the sensitive area and buffer;~~

~~—Unless the applicant can demonstrate unique circumstances related to the subject property, the amount of site area that will be disturbed by structure placement or other land alteration, including but not limited to grading, utility installation, decks, driveways, paving, and landscaping, shall not exceed the following limits:~~

~~—If the subject property contains 6,000 square feet of area or less, no more than 50 percent of the site may be disturbed.~~

~~—If the subject property contains more than 6,000 square feet but less than 30,000 square feet, no more than 3,000 square feet may be disturbed.~~

~~—For properties containing 30,000 square feet or more, the maximum allowable site disturbance shall be between 3,000 square feet and 10 percent of the lot area, to be determined by the City on a case-by-case basis.~~

~~—The amount of allowable disturbance shall be that which will have the least practicable impact on the sensitive area and the sensitive area buffer given the characteristics and context of the subject property, sensitive area, and buffer.~~

~~—The applicant shall pay for a qualified professional to help with the City's determination of the appropriate limit for disturbance;~~

~~—The proposal is compatible in design, scale and use with other legally established development in the immediate vicinity of the subject property in the same zone and with similar site constraints;~~

~~—The proposal utilizes to the maximum extent possible innovative construction, design, and development techniques, including pervious surfaces, which minimize to the greatest extent possible net loss of sensitive area functions and values;~~

~~—The proposed development does not pose an unacceptable threat to the public health, safety, or welfare on or off the property;~~

~~—The proposal meets the mitigation, maintenance, and monitoring requirements of this chapter;~~

~~—The inability to derive reasonable use is not the result of actions by the applicant after the effective date of the ordinance codified in this chapter or its predecessor; and~~

~~—The granting of the exception will not confer on the applicant any special privilege that is denied by this chapter to other lands, buildings, or structures under similar circumstances.~~

1) ~~Modifications and Conditions — The City may approve reduction in required yards or buffer setbacks and may allow the maximum height of structures to be increased up to five feet to reduce the impact on the sensitive area and sensitive area buffer. The City shall include in the written decision any conditions and restrictions that the City determines are necessary to eliminate or minimize any undesirable effects of approving the exception.~~

~~—Process: Administrative Alternative — If, in order to provide reasonable use of a site, the standards of this chapter need to be modified and the proposed improvement does not exceed a total of 3,000 square feet of site impact, including but not limited to structures, paved areas, landscaping, decks,~~

~~driveways, utility installation, and grading, the Planning Director is authorized to approve a reasonable use exception subject to subsections (4) and (5) of this section and considered under Process I of Chapter 145 KZC.~~

~~Administrative approval shall also be subject to the following limitations:~~

~~—The required front yard may be reduced by up to 50 percent where the applicant demonstrates that the development cannot meet the City's code requirements without encroaching into the sensitive area buffer.~~

~~—The encroachment of the proposed development shall only be into the sensitive area buffer, not the sensitive area.~~

~~4)~~

#### 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 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 83.450(3) for a wetland or based on the definitions contained in this chapter for a stream;
- 2) An analysis of the mitigation sequencing as outlined in KZC 83.440.2;
- 3) Sensitive site design and construction staging of the proposal so that the development will have the least practicable impact on the sensitive area and sensitive area buffer;
- 4) A description of the area of the site which 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 amount of development proposed would have on the sensitive area and the sensitive area buffer;
- 7) How the proposal minimizes to the greatest extent possible net loss of sensitive area and/or sensitive area buffer functions;
- 8) Whether the improvement is located away from the sensitive area and the sensitive area buffer to the greatest extent possible;
- 9) 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.
- 10) Information specified in KZC 83.450(8);

11) An evaluation of the project's consistency with the shoreline variance criteria contained in WAC 173-27-170; and

12) 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: 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 wetland consultant. The report shall contain all information specified in KZC 83.450(c) as well as 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. The City may only approve an improvement or land surface modification in a wetland if:~~

~~a.1) The project demonstrates consideration and implementation of appropriate mitigation sequencing as outlined in KZC 83.440.2;~~

~~b.2) It will not adversely affect water quality;~~

~~c.3) It will not adversely affect fish, wildlife, or their habitat;~~

~~d.4) It will not have an adverse effect on drainage and/or storm water detention capabilities;~~

~~e.5) It will not lead to unstable earth conditions or create an erosion hazard or contribute to scouring actions;~~

~~f.6) It will not be materially detrimental to any other property or the City as a whole;~~

~~g.7) Compensatory mitigation is provided in accordance with the table in subsection (e)8 of this section;~~

~~h.8) Fill material does not contain organic or inorganic material that would be detrimental to water quality or fish and wildlife habitat;~~

~~i.9) All exposed areas are stabilized with vegetation normally associated with native wetlands and/or buffers, as appropriate; and~~

~~j.10) There is no practicable or feasible alternative development proposal that results in less impact to the wetland and its buffer.~~

~~40.8. Compensatory Mitigation – A modification may only be approved after the applicant has demonstrated consideration and implementation of appropriate mitigation sequencing as outlined in KZC 83.85.2. 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 <sup>1</sup>	Re-establishment or Creation (R/C) and Rehabilitation (RH) <sup>1</sup>	Re-establishment or Creation (R/C) and Enhancement (E) <sup>1</sup>	Enhancement Only <sup>1</sup>
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 Heritage site	Not allowed	Not allowed	Case-by-case
Category I Bog	Not allowed	6:1 Rehabilitation of a bog	Not allowed	Not allowed	Case-by-case

On-site mitigation is presumed to be preferable to off-site mitigation. 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 Department of Elections and Records, 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.

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

<sup>1</sup> 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

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:

- ~~2-1)~~ The goals and objectives for the mitigation plan;
- ~~3-2)~~ Success criteria by which the mitigation will be assessed;
- ~~4-3)~~ Plans for a five (5) year monitoring and maintenance program;
- ~~5-4)~~ A contingency plan in case of failure; and
- ~~6-5)~~ 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.

#### 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 83.440.2.
- b. Approved departures from the standard buffer requirements of KZC 83.450.4(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 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 83.450.4(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. Buffer widths may be decreased if an applicant receives a modification request approval.
  - ~~5-1)~~ 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 83.450.4(a). Buffers may not be reduced at any point by more than

twenty-five percent (25%) of the standards specified in KZC 83.450.(a). 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 83.90.5(d). Buffers may not be reduced at any point by more than twenty-five (25) percent of the standards in KZC 83.450.3(a). Buffer reductions of more than twenty-five (25) percent approved through a Shoreline Variance will be assumed to have direct wetland impacts that must be compensated for as described above under KZC 83.450.8.

6-2) 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 83.440.2.
- 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 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 wetland 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 this subsection (d)(2) of this section.

- 10. 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 83.440, Trees in Critical Areas or Critical Area Buffers; and KZC 83.440, 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 wetland restoration is required by the City, the requirements of KZC 83.450.8, Compensatory Mitigation, shall apply.

11. 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.

#### **83.460 Streams**

1. ~~4.~~ Applicability – The following provisions shall apply to streams and stream buffers located within the shoreline jurisdiction, in replace 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, which 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 may occur and no improvements may be located in a stream or its buffer except as provided in KZC 83.460.3 through 83.460.11.
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 two 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

~~i.a.~~ Stream Buffers – No land surface modification shall occur and no improvement may be located in a stream or its buffer, except as provided in this section. See also KZC 83.85(1), Trees in Critical Areas or Critical Area Buffers; and KZC 83.85(2), Mitigation and Restoration

Plantings in Critical Areas and Critical Area Buffers. Required, or standard, buffers for streams are as follows:

**Stream Buffers**

<b>Stream Class</b>	<b>Primary Basins</b>	<b>Secondary Basins</b>
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 ordinary high water mark 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 which 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~~1) Does not provide additional protection of the wetland from the proposed development; and
- ~~2~~2) Provides insignificant biological, geological or hydrological buffer functions relating to the portion of the buffer adjacent to the wetland.

~~ii~~.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 which 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.

~~iii~~.c. Storm Water Outfalls – 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 Public Works and Planning Officials both determine, 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;
- 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 wetland or wetland buffer by meeting the following design standards:

- ~~4~~6) Catch basins must be installed as far as feasible from the buffer boundary.
- ~~2~~7) Outfalls must be designed to reduce the chance of adverse impacts as a result of concentrated discharges from pipe systems. This may include:
  - ~~a~~a) Installation of the discharge end as far as feasible from the sensitive area, and

~~b.1)~~ Use of appropriate energy dissipation at the discharge end.

~~iv.d.~~ Water Quality Facilities – Detention and water quality treatment devices, and other similar facilities as determined by the City, shall not be located within the stream buffers or buffer setbacks of this section except as provided below. 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:

~~a.1)~~ It will not adversely affect water quality;

~~b.2)~~ It will not adversely affect fish, wildlife, or their habitat;

~~c.3)~~ It will not adversely affect drainage or storm water detention capabilities;

~~d.4)~~ It will not lead to unstable earth conditions or create erosion hazards or contribute to scouring actions;

~~e.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;

~~f.6)~~ The existing buffer is already degraded as determined by a qualified professional;

~~g.7)~~ Its 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

~~h.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):

~~k.9)~~ The project includes enhancement of the entire on-site buffer;

~~l.10)~~ The project would provide an exceptional ecological benefit off-site;

~~m.11)~~ The water quality facility, once installed, would not require any further disturbance or intrusion into the buffer; and

~~n.12)~~ There is no practicable or 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 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 83.440.2 has been considered and implemented:

~~b.1)~~ All utility work in improved City rights-of-way;

~~c.2)~~ All normal and routine maintenance, operation and reconstruction of existing roads, streets, and associated rights-of-way and structures; and

~~d.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 will 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 83.460.4. These minor improvements shall be located within the outer one-half 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 which 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 six-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 -

- a. 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 noted under subsection b and e.
- b. All Stream Relocation or Modification or Stream Buffer Modification affecting > one-third (1/3) of the standard buffer require a Shoreline Variance pursuant to Process IIA, described in Chapter 141, except as follows:
  - i. Development activity or land surface modification approved under subsection 4 above (Stream Buffer and Setback) or subsection 10 (Stream Crossings) and 11 (Stream Rehabilitation) below.
  - i. Applicants for a detached dwelling who are unable to comply with the specific standards of this section may seek approval pursuant to the following standards and procedures:
    1. When allowed - A reasonable use exception may be granted if the strict application of this section would preclude all reasonable use of a site. The reasonable use process within the shoreline management area applies to lots that are significantly constrained by critical area and critical area buffers.
    2. Submittal Requirements – As part of the reasonable use request, in addition to submitting an application, 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:

- a) A determination and delineation of the sensitive area and sensitive area buffer containing all the information specified in KZC 83.450(3) for a wetland or based on the definitions contained in this chapter for a stream;
  - b) An analysis of whether any other reasonable use with less impact on the sensitive area and sensitive area buffer is possible;
  - c) Sensitive site design and construction staging of the proposal so that the development will have the least practicable impact on the sensitive area and sensitive area buffer;
  - d) A description of the area of the site which is within the sensitive area or within the setbacks or buffers required by this chapter;
  - e) 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;
  - f) An analysis of the impact that the amount of development proposed would have on the sensitive area and the sensitive area buffer;
  - g) How the proposal minimizes to the greatest extent possible net loss of sensitive area and/or sensitive area buffer functions;
  - h) Whether the improvement is located away from the sensitive area and the sensitive area buffer to the greatest extent possible;
  - i) Information specified in KZC 83.450(8); and
  - j) Such other information or studies as the Planning Official may reasonably require.
3. Decisional Criteria – The City shall grant approvals for reasonable use exceptions only if all of the following criteria are met:
- a) That no permitted type of land use for the property with less impact on the sensitive area and associated buffer is feasible and reasonable, which in the Natural Environment shall be one single-family dwelling;
  - b) That there is no feasible on-site alternative to the proposed activities, including reduction in size, density or intensity, phasing of project implementation, change in timing of activities, revision of road and lot layout, and/or related site planning considerations, that would allow a reasonable economic use with less adverse impacts to the sensitive area and buffer;
  - c) Unless the applicant can demonstrate unique circumstances related to the subject property, the amount of site area that will be disturbed by structure placement or other land alteration, including but not limited to grading, utility installation, decks, driveways, paving, and landscaping, shall not exceed 3,000 square feet. The amount of allowable disturbance shall be that which will have the least practicable impact on the sensitive area and the sensitive area buffer given the characteristics and context of the subject property, sensitive area, and buffer;
  - d) The applicant shall pay for a qualified professional to help with the City's determination of the appropriate limit for disturbance;
  - e) The proposal is compatible in design, scale and use with other legally established development in the immediate vicinity of the subject property in the same zone and with similar site constraints;

- ~~f) The proposal utilizes to the maximum extent possible innovative construction, design, and development techniques, including pervious surfaces, which minimize to the greatest extent possible net loss of sensitive area functions and values;~~
  - ~~g) The proposed development does not pose an unacceptable threat to the public health, safety, or welfare on or off the property;~~
  - ~~h) The proposal meets the mitigation, maintenance, and monitoring requirements of this chapter;~~
  - ~~i) The inability to derive reasonable use is not the result of actions by the applicant after the effective date of the ordinance codified in this chapter or its predecessor; and~~
  - ~~j) The granting of the exception will not confer on the applicant any special privilege that is denied by this chapter to other lands, buildings, or structures under similar circumstances.~~
- ~~—iv. Modifications and Conditions – The City may approve reduction in required yards or buffer setbacks and may allow the maximum height of structures to be increased up to five feet to reduce the impact on the sensitive area and sensitive area buffer. The required front yard may be reduced by up to 50 percent where the applicant demonstrates that the development cannot meet the City’s code requirements without encroaching into the sensitive area buffer. The City shall include in the written decision any conditions and restrictions that the City determines are necessary to eliminate or minimize any undesirable effects of approving the exception. In the Natural Environment, applicants for a detached dwelling who are unable to comply with the specific standards of this section may seek approval pursuant to the following standards and procedures:~~
- ~~— Process — If the strict application of this section would preclude all reasonable use of a site, an owner of real property may apply for a reasonable use exception to this chapter.~~
  - ~~— The application shall be considered under Process IIA of Chapter 150-KZC; provided, that for a single family development proposal which does not exceed a total of 3,000 square feet of site disturbance, and does not encroach into the sensitive area, but only the associated buffer, the application shall be considered pursuant to subsection (7) of this section, Reasonable Use Process: Administrative Alternative.~~
  - ~~In addition, the application shall be processed as a Shoreline Conditional Use Permit under the provisions of Chapter 141 KZC and WAC 173-27.~~
- ~~Submittal Requirements — As part of the reasonable use request, in addition to submitting an application, 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:~~
- ~~A determination and delineation of the sensitive area and sensitive area buffer containing all the information specified in KZC 83.450(3) for a wetland or based on the definitions contained in this chapter for a stream;~~
  - ~~An analysis of whether any other reasonable use with less impact on the sensitive area and sensitive area buffer is possible;~~
  - ~~Sensitive site design and construction staging of the proposal so that the development will have the least practicable impact on the sensitive area and sensitive area buffer;~~

~~A description of the area of the site which is within the sensitive area or within the setbacks or buffers required by this chapter;~~

~~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;~~

~~An analysis of the impact that the amount of development proposed would have on the sensitive area and the sensitive area buffer;~~

~~How the proposal minimizes to the greatest extent possible net loss of sensitive area functions;~~

~~Whether the improvement is located away from the sensitive area and the sensitive area buffer to the greatest extent possible; and~~

~~Such other information or studies as the Planning Official may reasonably require.~~

~~Decisional Criteria — The City shall grant applications for reasonable use exceptions only if all of the following criteria are met:~~

~~That no permitted type of land use for the property with less impact on the sensitive area and associated buffer is feasible and reasonable, which in a residential zone shall be one single family dwelling and in a commercial or industrial zone shall be an office use;~~

~~That there is no feasible on-site alternative to the proposed activities, including reduction in size, density or intensity, phasing of project implementation, change in timing of activities, revision of road and lot layout, and/or related site planning considerations, that would allow a reasonable economic use with less adverse impacts to the sensitive area and buffer;~~

~~Unless the applicant can demonstrate unique circumstances related to the subject property, the amount of site area that will be disturbed by structure placement or other land alteration, including but not limited to grading, utility installation, decks, driveways, paving, and landscaping, shall not exceed the following limits:~~

~~If the subject property contains 6,000 square feet of area or less, no more than 50 percent of the site may be disturbed.~~

~~If the subject property contains more than 6,000 square feet but less than 30,000 square feet, no more than 3,000 square feet may be disturbed.~~

~~For properties containing 30,000 square feet or more, the maximum allowable site disturbance shall be between 3,000 square feet and 10 percent of the lot area, to be determined by the City on a case-by-case basis.~~

~~The amount of allowable disturbance shall be that which will have the least practicable impact on the sensitive area and the sensitive area buffer given the characteristics and context of the subject property, sensitive area, and buffer.~~

~~The applicant shall pay for a qualified professional to help with the City's determination of the appropriate limit for disturbance;~~

~~The proposal is compatible in design, scale and use with other legally established development in the immediate vicinity of the subject property in the same zone and with similar site constraints;~~

~~The proposal utilizes to the maximum extent possible innovative construction, design, and development techniques, including pervious surfaces, which minimize to the greatest extent possible net loss of sensitive area functions and values;~~

~~The proposed development does not pose an unacceptable threat to the public health, safety, or welfare on or off the property;~~

~~The proposal meets the mitigation, maintenance, and monitoring requirements of this chapter;~~

~~The inability to derive reasonable use is not the result of actions by the applicant after the effective date of the ordinance codified in this chapter or its predecessor; and~~

~~The granting of the exception will not confer on the applicant any special privilege that is denied by this chapter to other lands, buildings, or structures under similar circumstances.~~

~~Modifications and Conditions — The City may approve reduction in required yards or buffer setbacks and may allow the maximum height of structures to be increased up to five feet to reduce the impact on the sensitive area and sensitive area buffer. The City shall include in the written decision any conditions and restrictions that the City determines are necessary to eliminate or minimize any undesirable effects of approving the exception.~~

~~Process: Administrative Alternative — If, in order to provide reasonable use of a site, the standards of this chapter need to be modified and the proposed improvement does not exceed a total of 3,000 square feet of site impact, including but not limited to structures, paved areas, landscaping, decks, driveways, utility installation, and grading, the Planning Director is authorized to approve a reasonable use exception subject to subsections (4) and (5) of this section and considered under Process I of Chapter 145 KZC. Administrative approval shall also be subject to the following limitations:~~

~~The required front yard may be reduced by up to 50 percent where the applicant demonstrates that the development cannot meet the City's code requirements without encroaching into the sensitive area buffer.~~

~~2) The encroachment of the proposed development shall only be into the sensitive area buffer, not the sensitive area.~~

e.

## 7. Stream Buffer Modification

~~1)a.~~ Approved departures from the standard buffer requirements of KZC 83.460.4(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.

~~2)b.~~ 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.

~~a-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 83.460.4(a). Buffers may not be reduced at any point by more than one-third (1/3) of the standards in KZC 83.460.4(a). Buffer averaging calculations shall only consider the subject property.

- ~~b-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 83.450.8. Buffers may not be reduced at any point by more than one-third (1/3) of the standards in KZC 83.460.4(a).
- a. Decisional Criteria – An improvement or land surface modification may only be approved in a stream buffer only if:
- ~~a-1~~) The project demonstrates consideration and implementation of appropriate mitigation sequencing as outlined in KZC 83.440.2.
- ~~b-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);
- ~~c-3~~) It will not adversely affect water quality;
- ~~d-4~~) It will not adversely affect fish, wildlife, or their habitat;
- ~~e-5~~) It will not have an adverse effect on drainage and/or storm water detention capabilities;
- ~~f-6~~) It will not lead to unstable earth conditions or create an erosion hazard or contribute to scouring actions;
- ~~g-7~~) It will not be materially detrimental to any other property or the City as a whole;
- ~~h-8~~) Fill material does not contain organic or inorganic material that would be detrimental to water quality or to fish, wildlife, or their habitat;
- ~~i-9~~) All exposed areas are stabilized with vegetation normally associated with native stream buffers, as appropriate; and
- ~~j-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 wetland 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 ten criteria listed in this subsection.

8. 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 may not be considered.

A proposal to relocate or modify a Class A stream may only be approved only 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 Department of Elections and Records, consenting to the sensitive area and/or buffer creation or increase on such property.

Prior to the City's 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:

i.a. A topographic survey showing existing and proposed topography and improvements;

ii.b. The filling and revegetation of the existing stream channel;

iii.c. A proposed phasing plan specifying time of year for all project phases;

iv.d. The ability of the new stream channel to accommodate flow and velocity of 100-year storm events; and

v.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 83.450.8.

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.

9. Bulkheads in Streams - Bulkheads are not permitted along a stream, except as provided in this subsection. The City shall allow a bulkhead to be constructed only if:

- ~~i.a.~~ It is not located within a wetland or between a wetland and a stream;
- ~~ii.b.~~ It is needed to prevent significant erosion;
- ~~iii.c.~~ The use of vegetation and/or other biological materials would not sufficiently stabilize the stream bank to prevent significant erosion;
- ~~iv.d.~~ 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:
  - ~~2)1)~~ There will be no adverse impact to water quality;
  - ~~3)2)~~ There will be no adverse impact to fish, wildlife, and their habitat;
  - ~~4)3)~~ There will be no increase in the velocity of stream flow, unless approved by the City to improve fish habitat;
  - ~~5)4)~~ There will be no decrease in flood storage volumes;
  - ~~6)5)~~ Neither the installation, existence, nor operation of the bulkhead will lead to unstable earth conditions or create erosion hazards or contribute to scouring actions; and
  - ~~7)6)~~ Neither the installation, existence, nor operation of the bulkhead will be detrimental to any other property or the City as a whole; and
- ~~v.e.~~ The Washington Department of Fish and Wildlife issues a Hydraulic Project Approval for the project.

The bulkhead shall be designed consistent with Washington Department of Fish and Wildlife's *Integrated Streambank Protection Guidelines* (2003, or as revised). The bulkhead 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.

10. 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:

- ~~i.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;
- ~~ii.b.~~ The Washington Department of Fish and Wildlife issues a Hydraulic Project Approval for the project; and
- ~~iii.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) Neither 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) Neither the installation, existence, nor operation of the stream crossing will be detrimental to any other property or to the City as a whole.

The stream crossing shall be designed and constructed to allow passage of fish inhabiting the stream or which 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 culvert maintenance agreement under KZC 90.145 for continued maintenance of the stream crossing.

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 above criteria and the following additional criteria:

- 7) The culvert must be designed consistent with Washington Department of Fish and Wildlife's *Design of Road Culverts for Fish Passage* (2003, or as revised).

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.

11. 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 83.440, Trees in Critical Areas or Critical Area Buffers; and KZC 83.440, 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 stream rehabilitation is required by the City, the mitigation plan and monitoring requirements of KZC 83.450.8, shall apply.

83.470 Geologically hazardous areas.

1. The City of Kirkland Geologically Hazardous Area Regulations, as codified in Chapter 85 KZC (dated XX, Ordinance # XX), are herein incorporated into this master program.
2. In addition to the required information contained in KZC 85.15.3, the geotechnical report shall also contain any additional information specified under the definition of Geotechnical Report contained in KZC Section 83.80.

~~83.481~~83.480 Flood Hazard Reduction.

1. The City of Kirkland Flood Damage Regulations, as codified in Chapter 21.56 KMC (dated XX, Ordinance # XX), are herein incorporated into this master program.

83.490 Archaeological and Historic Resources

1. General - Uses, developments and activities on sites of historic or archeological significance or sites containing things 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 will 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 possible 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 2744 (Indian Graves and Records) and RCW 2753 (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 which are registered on the State or National Historic Register are subject to review under the National and State Registers' review process.

## **BMPs for Landscaping and Lawn/Vegetation Management**

**Description of Pollutant Sources:** Landscaping can include grading, soil transfer, vegetation removal, pesticide and fertilizer applications, and watering. Stormwater contaminants include toxic organic compounds, heavy metals, oils, total suspended solids, coliform bacteria, fertilizers, and pesticides.

Lawn and vegetation management can include control of objectionable weeds, insects, mold, bacteria and other pests with chemical pesticides and is conducted commercially at commercial, industrial, and residential sites. Examples include weed control on golf course lawns, access roads, and utility corridors and during landscaping; sap stain and insect control on lumber and logs; rooftop moss removal; killing nuisance rodents; fungicide application to patio decks, and residential lawn/plant care. Toxic pesticides such as pentachlorophenol, carbamates, and organometallics can be released to the environment by leaching and dripping from treated parts, container leaks, product misuse, and outside storage of pesticide contaminated materials and equipment. Poor management of the vegetation and poor application of pesticides or fertilizers can cause appreciable stormwater contamination.

**Pollutant Control Approach:** Control of fertilizer and pesticide applications, soil erosion, and site debris to prevent contamination of stormwater.

Develop and implement an Integrated Pest Management Plan (IPM) and use pesticides only as a last resort. If pesticides/herbicides are used they must be carefully applied in accordance with label instructions on U.S. Environmental Protection Agency (EPA) registered materials. Maintain appropriate vegetation, with proper fertilizer application where practicable, to control erosion and the discharge of stormwater pollutants. Where practicable grow plant species appropriate for the site, or adjust the soil properties of the subject site to grow desired plant species.

### **Applicable Operational BMPs for Landscaping:**

- Install engineered soil/landscape systems to improve the infiltration and regulation of stormwater in landscaped areas.
- Do not dispose of collected vegetation into waterways or storm drainage systems.

### **Recommended Additional Operational BMPs for Landscaping:**

- Conduct mulch-mowing whenever practicable
- Dispose of grass clippings, leaves, sticks, or other collected vegetation, by composting, if feasible.

- Use mulch or other erosion control measures when soils are exposed for more than one week during the dry season or two days during the rainy season.
- If oil or other chemicals are handled, store and maintain appropriate oil and chemical spill cleanup materials in readily accessible locations. Ensure that employees are familiar with proper spill cleanup procedures.
- Till fertilizers into the soil rather than dumping or broadcasting onto the surface. Determine the proper fertilizer application for the types of soil and vegetation encountered.
- Till a topsoil mix or composted organic material into the soil to create a well-mixed transition layer that encourages deeper root systems and drought-resistant plants.
- Use manual and/or mechanical methods of vegetation removal rather than applying herbicides, where practical.

#### **Applicable Operational BMPs for the Use of Pesticides:**

- Develop and implement an IPM (See section on IPM at end of BMP) and use pesticides only as a last resort.
- Implement a pesticide-use plan and include at a minimum: a list of selected pesticides and their specific uses; brands, formulations, application methods and quantities to be used; equipment use and maintenance procedures; safety, storage, and disposal methods; and monitoring, record keeping, and public notice procedures. All procedures shall conform to the requirements of Chapter 17.21 RCW and Chapter 16-228 WAC (Appendix IV-D R.7).
- Choose the least toxic pesticide available that is capable of reducing the infestation to acceptable levels. The pesticide should readily degrade in the environment and/or have properties that strongly bind it to the soil. Any pest control used should be conducted at the life stage when the pest is most vulnerable. For example, if it is necessary to use a Bacillus thuringiensis application to control tent caterpillars, it must be applied before the caterpillars cocoon or it will be ineffective. Any method used should be site-specific and not used wholesale over a wide area.
- Apply the pesticide according to label directions. Under no conditions shall pesticides be applied in quantities that exceed manufacturer's instructions.
- Mix the pesticides and clean the application equipment in an area where accidental spills will not enter surface or ground waters, and will not contaminate the soil.

- Store pesticides in enclosed areas or in covered impervious containment. Ensure that pesticide contaminated stormwater or spills/leaks of pesticides are not discharged to storm drains. Do not hose down the paved areas to a storm drain or conveyance ditch. Store and maintain appropriate spill cleanup materials in a location known to all near the storage area.
- Clean up any spilled pesticides and ensure that the pesticide contaminated waste materials are kept in designated covered and contained areas.
- The pesticide application equipment must be capable of immediate shutoff in the event of an emergency.
- Do not spray pesticides 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 Ecology or the local jurisdiction. All sensitive areas including wells, creeks and wetlands must be flagged prior to spraying.
- As required by the local government or by Ecology, complete public posting of the area to be sprayed prior to the application.
- Spray applications should only be conducted during weather conditions as specified in the label direction and applicable local and state regulations. Do not apply during rain or immediately before expected rain.

**Recommended Additional Operational BMPs for the use of pesticides:**

- Consider alternatives to the use of pesticides such as covering or harvesting weeds, substitute vegetative growth, and manual weed control/moss removal.
- Consider the use of soil amendments, such as compost, that are known to control some common diseases in plants, such as Pythium root rot, ashy stem blight, and parasitic nematodes. The following are three possible mechanisms for disease control by compost addition (USEPA Publication 530-F-9-044):
  1. Successful competition for nutrients by antibiotic production;
  2. Successful predation against pathogens by beneficial microorganism; and
  3. Activation of disease-resistant genes in plants by composts.

*Installing an amended soil/landscape system can preserve both the plant system and the soil system more effectively. This type of approach provides a soil/landscape system with adequate depth, permeability, and organic matter to sustain itself and continue working as an effective stormwater infiltration system and a sustainable nutrient cycle.*

- Once a pesticide is applied, its effectiveness should be evaluated for possible improvement. Records should be kept showing the applicability and inapplicability of the pesticides considered.
- An annual evaluation procedure should be developed including a review of the effectiveness of pesticide applications, impact on buffers and sensitive areas (including potable wells), public concerns, and recent toxicological information on pesticides used/proposed for use. If individual or public potable wells are located in the proximity of commercial pesticide applications contact the regional Ecology hydrogeologist to determine if additional pesticide application control measures are necessary.
- Rinseate from equipment cleaning and/or triple-rinsing of pesticide containers should be used as product or recycled into product.
- The application equipment used should be capable of immediate shutoff in the event of an emergency.

*For more information, contact the WSU Extension Home-Assist Program, (253) 445-4556, or Bio-Integral Resource Center (BIRC), P.O. Box 7414, Berkeley, CA.94707, or the Washington Department of Ecology to obtain "Hazardous Waste Pesticides" (Publication #89-41); and/or EPA to obtain a publication entitled "Suspended, Canceled and Restricted Pesticides" which lists all restricted pesticides and the specific uses that are allowed. Valuable information from these sources may also be available on the internet.*

#### **Applicable Operational BMPs for Vegetation Management:**

- Use at least an eight-inch "topsoil" layer with at least 8 percent organic matter to provide a sufficient vegetation-growing medium. Amending existing landscapes and turf systems by increasing the percent organic matter and depth of topsoil can substantially improve the permeability of the soil, the disease and drought resistance of the vegetation, and reduce fertilizer demand. This reduces the demand for fertilizers, herbicides, and pesticides. Organic matter is the least water-soluble form of nutrients that can be added to the soil. Composted organic matter generally releases only between 2 and 10 percent of its total nitrogen annually, and this release corresponds closely to the plant growth cycle. If natural plant debris and mulch are returned to the soil, this system can continue recycling nutrients indefinitely.
- Select the appropriate turfgrass mixture for your climate and soil type. Certain tall fescues and rye grasses resist insect attack because the symbiotic endophytic fungi found naturally in their tissues repel or kill common leaf and stem-eating lawn insects. They do not, however, repel root-feeding lawn pests such as Crane Fly larvae, and are toxic to ruminants such as cattle and sheep. The fungus causes no known

adverse effects to the host plant or to humans. Endophytic grasses are commercially available and can be used in areas such as parks or golf courses where grazing does not occur. The local Cooperative Extension office can offer advice on which types of grass are best suited to the area and soil type.

- Use the following seeding and planting BMPs, or equivalent BMPs to obtain information on grass mixtures, temporary and permanent seeding procedures, maintenance of a recently planted area, and fertilizer application rates: Temporary Seeding, Mulching and Matting, Clear Plastic Covering, Permanent Seeding and Planting, and Sodding as described in Volume II).
- Selection of desired plant species can be made by adjusting the soil properties of the subject site. For example, a constructed wetland can be designed to resist the invasion of reed canary grass by layering specific strata of organic matters (e.g., compost forest product residuals) and creating a mildly acidic pH and carbon-rich soil medium. Consult a soil restoration specialist for site-specific conditions.
- Aerate lawns regularly in areas of heavy use where the soil tends to become compacted. Aeration should be conducted while the grasses in the lawn are growing most vigorously. Remove layers of thatch greater than ¾-inch deep.
- Mowing is a stress-creating activity for turfgrass. When grass is mowed too short its productivity is decreased and there is less growth of roots and rhizomes. The turf becomes less tolerant of environmental stresses, more disease prone and more reliant on outside means such as pesticides, fertilizers and irrigation to remain healthy. Set the mowing height at the highest acceptable level and mow at times and intervals designed to minimize stress on the turf. Generally mowing only 1/3 of the grass blade height will prevent stressing the turf.

***Irrigation:***

- The depth from which a plant normally extracts water depends on the rooting depth of the plant. Appropriately irrigated lawn grasses normally root in the top 6 to 12 inches of soil; lawns irrigated on a daily basis often root only in the top 1 inch of soil. Improper irrigation can encourage pest problems, leach nutrients, and make a lawn completely dependent on artificial watering. The amount of water applied depends on the normal rooting depth of the turfgrass species used, the available water holding capacity of the soil, and the efficiency of the irrigation system. Consult with the local water utility, Conservation District, or Cooperative Extension office to help determine optimum irrigation practices.

***Fertilizer Management:***

- Turfgrass is most responsive to nitrogen fertilization, followed by potassium and phosphorus. Fertilization needs vary by site depending on plant, soil and climatic conditions. Evaluation of soil nutrient levels through regular testing ensures the best possible efficiency and economy of fertilization. For details on soils testing, contact the local Conservation District or Cooperative Extension Service.
- Fertilizers should be applied in amounts appropriate for the target vegetation and at the time of year that minimizes losses to surface and ground waters. Do not fertilize during a drought or when the soil is dry. Alternatively, do not apply fertilizers within three days prior to predicted rainfall. The longer the period between fertilizer application and either rainfall or irrigation, the less fertilizer runoff occurs.
- Use slow release fertilizers such as methylene urea, IDBU, or resin coated fertilizers when appropriate, generally in the spring. Use of slow release fertilizers is especially important in areas with sandy or gravelly soils.
- Time the fertilizer application to periods of maximum plant uptake. Generally fall and spring applications are recommended, although WSU turf specialists recommend four fertilizer applications per year.
- Properly trained persons should apply all fertilizers. At commercial and industrial facilities fertilizers should not be applied to grass swales, filter strips, or buffer areas that drain to sensitive water bodies unless approved by the local jurisdiction.

***Integrated Pest Management***

An IPM program might consist of the following steps:

Step 1: Correctly identify problem pests and understand their life cycle

Step 2: Establish tolerance thresholds for pests.

Step 3: Monitor to detect and prevent pest problems.

Step 4: Modify the maintenance program to promote healthy plants and discourage pests.

Step 5: Use cultural, physical, mechanical, or biological controls first if pests exceed the tolerance thresholds.

Step 6: Evaluate and record the effectiveness of the control and modify maintenance practices to support lawn or landscape recovery and prevent recurrence.

For an elaboration of these steps refer to Appendix IV-F.

Shoreline Modification Regulations

- 83.270 General
- 83.280 Piers, Docks, Floats and Boatlifts
- 83.290 Marinas
- 83.300 Shoreline stabilization
- 83.310 Breakwaters, jetties, rock weirs, groins
- 83.320 Dredging and dredge material disposal
- 83.330 Land Surface Modification
- 83.340 Landfill
- 83.350 Shoreline habitat and natural systems enhancement projects

83.270 General

1. Shoreline modifications are to be designed, located, sized, and constructed such that the structures or measures do not result in a net loss of shoreline ecological functions. Where adverse impacts to ecological functions cannot be avoided, mitigation shall be provided to achieve no net loss of shoreline ecological functions.
2. All work at or waterward of the ordinary high water mark 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. Documentation verifying necessary state and federal agency approvals must be submitted to the City prior to issuance of a shoreline permit, including shoreline exemption. All activities within shoreline jurisdiction must comply with all other regulations as stipulated by state and federal agencies, local tribes, or others that have jurisdiction.

83.280 Piers, Docks, Floats and Boatlifts

[Placeholder]

83.290 Marinas

1. Location Standards –
  - a. Marinas may not be approved in cases when it can be 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. Marinas shall be designed and located according to the following criteria:
    - 1) The moorage structures will not interfere with the public use and enjoyment of the water or create a hazard to navigation;
    - 2) They shall not significantly damage fish and wildlife habitats;
    - 3) They shall be designed to achieve no net loss of shoreline ecological functions; and
    - 4) They shall be located only at sites with suitable environmental conditions, shoreline configuration, and access.
  - c. Moorage structures within marinas shall comply with the following setback standards:
    - 1) Except for those marinas located within a public park or properties located in the Urban Mixed shoreline environment, the following setback standards from public parks apply to marinas:

- a) No moorage structure may be within 100' feet of a public park; or
  - b) No moorage structure may be closer to a public park than a line that starts where the high waterline of the park intersects with the side property line of the park closest to the moorage structure 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.
- 2) Except for properties located in the Urban Mixed shoreline environment, No moorage structure may be closer to a lot containing a detached dwelling unit than a line that starts where the ordinary high water mark of the lot intersects the side property line of the lot closest to the moorage structure and runs waterward toward the moorage structure 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; or
- 3) No moorage structure may be within 25' of another moorage structure not on the subject property; or
  - 4) Moorage structures shall be separated from the outlet of a stream, including piped streams, by the maximum extent possible, while meeting other required setback standards established under this section.
- d. No structures, other than each moorage structure or public access pier, may be waterward of the ordinary high water mark. For regulations regarding public access piers, see subsection 8) below.
  - e. If the moorage structure will extend waterward of the Inner Harbor Line, the applicant must obtain an aquatic use authorization from the Washington State Department of Natural Resources prior to submittal of a Building Permit for this use.
  - f. Marinas shall provide for multiple use, including water-related use, to the extent compatible with shoreline ecological functions and processes, adjacent shoreline use, and ability of the upland area to accommodate multiple uses.
2. Size –
- a. The City will determine the maximum allowable number of moorages based on the following factors:
    - 1) The suitability of the environmental conditions.
    - 2) The ability of the land landward of the high waterline to accommodate the necessary support facilities.
    - 3) The potential for traffic congestion.
    - 4) The demand analysis submitted by the applicant to demonstrate anticipated need for the requested number of moorages.
  - b. Boats moored within marinas shall comply with the mooring restrictions contained in Chapter 14.16 KMC.
3. Design Standards -
- a. General –
    - 1) The design of the site must be compatible with the scenic nature of the waterfront. If the development will result in the isolation of a detached dwelling unit, site design, building design and landscaping must mitigate the impacts of that isolation.
    - 2) Must provide at least two covered and secured waste receptacles upland of the ordinary high water mark.

- 3) All utility and service lines located waterward of the ordinary high water mark must be below the pier deck. All utility and service lines located upland of the ordinary high water mark shall be underground, where feasible.
  - 4) Must provide public restrooms upland of the ordinary high water mark.
  - 5) At least one pump-out facility shall be provided for use by the general public. This facility must be easily accessible to the general public and clearly marked for public use.
  - 6) 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.
  - 7) Moorage facilities shall be marked with reflectors, or otherwise identified to prevent unnecessarily hazardous conditions for water surface users during the day or night.
  - 8) Exterior finish shall be generally non-reflective.
  - 9) 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 inches high.
  - 10) Covered moorage, including boatlift canopies, is not permitted.
  - 11) Aircraft moorage is not permitted, except as associated with an approved float plane landing and mooring facility.
  - 12) Marinas shall be designed and operated consistent with 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.
  - 13) Procedures for receiving, storing, dispensing, and disposing of oil or hazardous products, as well as a spill response plan for oil and other products, shall be required of new marinas and expansion or substantial alteration of existing marinas. Compliance with federal or state law may fulfill this requirement. Handling of fuels, chemicals or other toxic materials must be in compliance with all applicable Federal and State water quality laws as well as health, safety and engineering requirements. Rules for spill prevention and response, including reporting requirements, shall be posted on site.
- b. Size and Design of Marinas –
- 1) Moorage structures may 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:
    - a) 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;
    - b) The moorage structure is not larger than is necessary to moor the specified number of boats; and
    - c) The moorage structure will not interfere with the public use and enjoyment of the water or create a hazard to navigation; and
    - d) The moorage structure will not have a significant long-term adverse effect on ecological functions.
- 4) Piers and docks shall be the minimum size necessary to meet the needs of the proposed water-dependent use and shall observe the following criteria:

- a) Use of materials that allow transmission of light (e.g. grating) in ramp and pier/float decking to the maximum extent feasible.
- b) Pier surfaces located in the nearshore 30 feet shall be fully grated to allow maximum light penetration.
- c) Piers, docks and floats shall be located along a north/south orientation to the maximum extent feasible.
- d) No structures other than walkways are permitted in nearshore 30 feet.
- e) Ells or fingers shall be located in areas where the water depth is a minimum of 9 feet.
- f) Floats shall be located in areas where the water depth is a minimum of 10 feet.
- ~~b)g)~~ Structures 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.
- ~~e)h)~~ Limit the number of piles to the minimum practicable. Pilings shall be spaced a minimum of 18 feet apart.
- ~~d)j)~~ Limit the size of piles to the minimum feasible.
- ~~e)j)~~ Pilings shall be composed of steel, concrete, plastic or untreated wood.
- k) Limit structure widths as follows:
  - i) Ramps may be no wider than 4 feet; and
  - ii) Primary walkways and floats may be no wider than 6 feet; and
  - iii) Ells may be no wider than 8 feet; and
  - iv) Fingers and other similar projections off of the primary walkway may be no wider than 4 feet, and shall be reduced to 2 feet in those instances where the projection provides secure boat moorage but is not necessary for boat-user access; or
  - v) An alternative design in lieu of meeting these requirements may be allowed if approved by other state and federal agencies.
- ~~g)l)~~ Maintain maximum height above water surface as is practicable in order to maintain light transmission.
- ~~m)~~ If a pier is provided with railing, such railing shall not exceed 36 inches in height and shall be an open framework that does not unreasonably interfere with shoreline views of adjoining properties or lawful use of water surfaces.
- c. 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.

### 83.300 Shoreline Stabilization

1. General – The purpose of this section is to provide standards and guidelines for the location and design of ~~bulkheads and other~~ hard structural and soft structural shoreline stabilization

measures that have the potential to adversely impact the shoreline natural environment. New development, however, shall be located and designed to avoid the need for future shoreline stabilization to the extent feasible. In all cases, the feasibility of soft structural shoreline stabilization shall be evaluated prior to hard structural stabilization. The following standards apply to all developments and uses in shoreline jurisdiction:

2. New or expanded non-hard structural shoreline stabilization - ~~Hard structural~~ New structural shoreline stabilization measures shall include measures installed to address erosion impacts, including both hard and soft structural shoreline stabilization measures. Enlargement of a structural shoreline stabilization shall include additions to or increases in size (such as height, width, length, or depth) to existing shoreline stabilization measures. Structural stabilization measures shall not be allowed, except as follows:
  - a. To protect an existing primary structure, including residences, when conclusive evidence, documented by a geotechnical analysis, is provided that the structure is in danger from shoreline erosion caused by waves. The geotechnical analysis should evaluate on-site drainage issues and address drainage problems away from the shoreline edge before considering hard or soft structural shoreline stabilization. The geotechnical analysis requirement shall be waived when a primary structure, including residences, is located ten (10) feet or less from the ordinary high water mark.
  - b. In support of new non-water-dependent development, including a detached dwelling unit, when all of the conditions below apply:
    - 1) The erosion is not being caused by upland conditions, such as drainage and the loss of vegetation.
    - 2) Nonstructural measures, such as placing the development farther from the shoreline, planting vegetation, or installing on-site drainage improvements, are not feasible or not sufficient.
    - 3) The need to protect primary structures from damage due to erosion is demonstrated through a geotechnical report. The damage must be caused by natural processes, such as waves.
  - c. In support of water-dependent development when all of the conditions below apply:
    - 1) The erosion is not being caused by upland conditions, such as drainage and the loss of vegetation.
    - 2) Nonstructural measures, planting vegetation, or installing on-site drainage improvements, are not feasible or not sufficient.
    - 3) The need to protect primary structures from damage due to erosion is demonstrated through a geotechnical report.
  - d. 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. Replacement or repair of existing shoreline stabilization measures - This section allows repair and replacement of existing legally established shoreline stabilization measures.
  - a. Minor Repair - Minor repair is permitted, subject to the following standards:
    - 1) Minor repair shall include modifications or improvements to an existing shoreline stabilization measure that are designed to ensure the continued function of the stabilization measure by preventing failure of any part of the stabilization measure. A repair that is proposed after more than 25% of the linear feet of the stabilization measure

2) The following activities shall not be considered as "minor repair":

a) A repair needed to a portion of an existing stabilization structure that has collapsed, eroded away or otherwise demonstrated a loss of structural integrity is not a minor repair. Any proposed, or in which the repair that work involves modification of the toe rock or footings is considered a major repair., and is greater than 15 feet in continuous linear length;

b) 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.

Repair activities not meeting the definition of minor repair shall be considered major repair or replacement and the portion of the shoreline stabilization that is being repaired shall be subject to the provisions contained in subsection b) below.

3) Areas of temporary disturbance within the shoreline setback shall be expeditiously restored to their pre-project condition or better.

b. Major Repair or Replacement - The following standards apply to major repair or replacement of existing hard and soft structural shoreline stabilization measures:

1) ~~Major repair or replacement shall be treated as a new shoreline stabilization measure, subject to the provisions of subsection 2. above, including the requirement to prepare a geotechnical analysis and consider soft shoreline stabilization techniques.~~ For purposes of this section, "replacement" means the construction of a new structure to perform a shoreline stabilization function of an existing structure that can no longer adequately serve its purpose. Additions to or increases in size of existing shoreline stabilization measures shall also be considered new structures.

2) Major repair or replacement shall be treated as a new shoreline stabilization measure subject to the restrictions of subsection 2. above, as well as the submittal requirements of subsection 4 below, except for the requirement to prepare a geotechnical analysis. A geotechnical analysis is not required for major repairs or replacements of existing hard or soft structural shoreline stabilization with a similar measure if the applicant demonstrates need to protect principal uses or structures from erosion caused by waves or other natural processes operating at or waterward of the ordinary high water mark. In those circumstances where a primary structure, including residences, is located ten (10) feet or less from the ordinary high water mark, need will be presumed to have been demonstrated.

3) Replacement hard structural shoreline stabilization measures shall not encroach waterward of the ordinary high water mark or waterward of the existing shoreline stabilization measure unless the primary structure was constructed prior to January 1, 1992, and there is overriding safety or environmental concerns. 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.

3) ~~Soft~~Hard and soft shoreline stabilization measures ~~that provide restoration of shoreline ecological functions~~ may allow some fill waterward of the ordinary high water mark to provide enhancement of shoreline ecological functions through creation of nearshore shallow-water habitat.

4. Submittal Requirements - In addition to submitting an application, the applicant shall submit the following as part of a request to construct a new, enlarged, major repair or replacement shoreline stabilization measure:

- a. For ~~a new, or enlarged, major repair or replacement~~ hard or soft 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 structural shoreline stabilization by estimating time frames and rates of erosion and ~~report~~reporting on the urgency associated with the specific situation. New ~~or replacement~~ hard or soft structural shoreline stabilization measures shall not be authorized, except when a report confirms that that there is a significant possibility that an existing structure will be damaged generally within three (3) years as a result of shoreline erosion in the absence of such hard structural shoreline 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.
  - 2) An assessment of the cause of erosion, looking at processes occurring both waterward and landward of the ordinary high water mark.
  - 3) Where structural shoreline stabilization is determined to be necessary in subsection 4 a. above, the assessment must evaluate the feasibility of using soft shoreline stabilization measures in lieu of hard structural shoreline stabilization measures. Soft shoreline stabilization may include the use of gravels, cobbles, boulders, and logs, as well as vegetation.
  - 4) Design recommendations for minimum sizing of hard structural or soft structural shoreline stabilization materials, including gravel and cobble beach substrates, necessary to dissipate wave energy, eliminate scour, and provide long-term shoreline stability.
- b. For all Geotechnical report requirements for new or enlarged hard or soft structural shoreline stabilization measures may be waived when a primary structure, including residences, is located ten (10) feet or less from the ordinary high water mark.
- c. For major repairs or replacements of existing hard structural shoreline stabilization measures with a similar measure, the applicant shall submit a written narrative providing a demonstration of need. The narrative must be prepared by a qualified professional (e.g., shoreline designer or other consultant familiar with lakeshore processes and shore stabilization), but not necessarily a licensed geotechnical engineer. The demonstration of need shall consist of the following:
  - c. An assessment of the necessity for continued structural shoreline stabilization, considering site-specific conditions such as water depth, orientation of the shoreline, wave fetch, and location of the nearest structure.
  - d. An assessment of erosion potential resulting from the action of waves or other natural processes operating at or waterward of the ordinary high water mark in the absence of the hard structural shoreline stabilization.
  - e. An assessment of the feasibility of using soft shoreline stabilization measures in lieu of hard structural shoreline stabilization measures. Soft shoreline stabilization may include the use of gravels, cobbles, boulders, and logs, as well as vegetation.
  - f. Design recommendations for minimizing impacts of any necessary hard structural shoreline stabilization.
- d. A demonstration of need may be waived when an existing hard structural shoreline stabilization measure is proposed to be repaired or replaced using soft structural shoreline stabilization measures, or when a primary structure, including residences, is located ten (10) feet or less from the ordinary high water mark.

- e. As part of any approval of a new, enlarged, or replacement structural shoreline stabilization measure, the applicant shall be required to fund a review by the City's shoreline consultant of the shoreline stabilization plan, the monitoring and maintenance program, the narrative justification of demonstrated need, and drawings. In addition, the Planning Official may require funding of a qualified professional, selected and retained by the City subject to a three-party contract, to review the geotechnical report and recommendations.
- f. For all structural shoreline stabilization measures, including soft structural shoreline stabilization, detailed construction plans, including the following:
- 1) Plan and cross-section views of the existing and proposed shoreline configuration, showing accurate existing and proposed topography and ordinary high water marks.
  - 1) 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:
    - a) 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;
    - b) Allow safe passage and migration of fish and wildlife; and
    - a)c) Minimize or eliminate juvenile salmon predator habitat.
  - 2) Detailed five-year vegetation maintenance and monitoring program to include the following:
    - a) Goals and objectives of the shoreline stabilization plan;
    - b) Success criteria by which the implemented plan will be assessed;
    - c) A five (5) year maintenance and monitoring plan, consisting of two site visits per year by a qualified professional, with annual progress reports submitted to the Planning Official and all other agencies with jurisdiction;
    - d) A contingency plan in case of failure; and
    - e) Proof of a written contract with a qualified professional who will perform the monitoring.
- eg. The Planning Official shall require a performance or maintenance bond or security, as determined to be appropriate by the Planning Official, to ensure compliance with any aspect of this chapter or any decision or determination made pursuant to this chapter.
- 1) Performance or Maintenance Bond or Security Requirement - The performance or maintenance security required by the Planning Official shall be provided in such forms and amounts as the Planning Official deems necessary to assure that all work or actions are satisfactorily completed or maintained in accordance with the approved plans, specifications, permit or approval requirements, and applicable regulations, and to assure that all work or actions not satisfactorily completed or maintained will be corrected to comply with approved plans, specifications, requirements, and regulations to restore environmental damage or degradation, protect fish and wildlife habitat, and protect the health, safety, and general welfare of the public.
  - 2) Form of Performance Security - The performance security shall be a surety bond obtained from companies registered as surety in the state or certified as acceptable sureties on federal bonds. In lieu of a surety bond, the Planning Official may allow alternative performance security in the form of an assignment of funds or account, an escrow agreement, an irrevocable letter of credit, or other financial security device in an amount equal to that required for a surety bond. The surety bond or other

performance security shall be conditioned on the work being completed or maintained in accordance with requirements, approvals, or permits; on the site being left or maintained in a safe condition; and on the site and adjacent or surrounding areas being restored in the event of damages or other environmental degradation from development or maintenance activities conducted pursuant to the permit or approval.

- 3) Amount of Performance Security - The amount of the performance or maintenance security shall be a percentage of the estimated cost based on the City's established percentage at the time of the security submittal. , The estimated cost shall be approved by the Planning Official and include conformance to plans, specifications, and permit or approval requirements under this chapter, including corrective work and compensation, enhancement, mitigation, maintenance, and restoration of sensitive areas. In addition, an administrative deposit shall be paid as required in KZC 175.25. All bond or performance security shall be submitted in their original form with original signatures of authorization.
  - 4) Administration of Performance Security - If during the term of the performance or maintenance security, the Planning Official determines that conditions exist which do not conform with plans, specifications, approval or permit requirements, the Planning Official may issue a stop work order prohibiting any additional work or maintenance until the condition is corrected. The Planning Official may revoke the performance or maintenance security, or a portion thereof, in order to correct conditions that are not in conformance with plans, specifications and approval or permit requirements. The performance or maintenance security may be released upon written notification by the Planning Official, following final site inspection or completion, as appropriate, or when the Planning Official is satisfied that the work or activity complies with permits or approved requirements.
  - 5) Exemptions for Public Agencies - State agencies and local government bodies, including school districts, shall not be required to secure the performance or maintenance of permit or approval conditions with a surety bond or other financial security device. These public agencies are required to comply with all requirements, terms, and conditions of the permit or approval, and the Planning Official may enforce compliance by withholding certificates of occupancy or occupancy approval, by administrative enforcement action, or by any other legal means.
- d. The cost of producing and implementing the shoreline stabilization plan, the monitoring and maintenance program, reports, and drawings, as well as the review of each component by the City and the City's consultant(s), shall be borne by the applicant.
5. General Design Standards - When a **hard or soft structural** shoreline stabilization measure is demonstrated to be necessary, the following design standards shall be incorporated into the stabilization design:
    - a. Soft **structural** shoreline stabilization measures shall be used to the maximum extent practicable **for new, enlarged, major repair or replacement shoreline stabilization measures**, limiting hard structural shoreline stabilization measures to the portion or portions of the site where necessary to protect or support existing shoreline structures or trees, **or where necessary to connect to existing shoreline stabilization measures on adjacent properties. The length of hard structural shoreline stabilization connections to adjacent properties should be minimized to the maximum extent practicable, and extend into the subject property from adjacent properties no more than 10 feet.**
    - b. For enlarged, major repair or replacement soft and hard structural shoreline stabilization measures, the following location and design standards are preferred in descending order:

- 1) Conduct excavation and fill activities associated with the soft or hard structural shoreline stabilization landward of the existing ordinary high water mark to the maximum extent practicable.
  - 2) Where 1) is not practicable because of existing site conditions, conduct necessary excavation and fill activities waterward of the existing ordinary high water mark as needed to implement a soft structural shoreline stabilization technique or to mitigate the impacts of hard structural shoreline stabilization.
- ~~bc. The shoreline stabilization measure shall be designed to not significantly interfere with normal surface and/or subsurface drainage into Lake Washington.~~
- ~~c. The shoreline stabilization measure shall be designed so as not to constitute a hazard to navigation or substantially interfere with visual access to the water.~~
- ~~d. Stairs or other water access measures may be incorporated into the shoreline stabilization, but shall not extend waterward of the shoreline stabilization measure.~~
- ~~e. The shoreline stabilization measures shall be designed to ensure that the measures do not restrict appropriate public access to the shoreline, except where such access is modified under the provisions of KZC Section 83.370 for public access.~~
- ~~f. To the extent feasible, and warranted by site-specific conditions, all approved new, enlarged, minor repair, major repair or replacement shoreline stabilization measures must minimize and mitigate any adverse impacts to ecological functions resulting from short-term construction activities. Impact minimization techniques may include 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.~~
- ~~ed. To the extent feasible and warranted by site-specific conditions, all new, enlarged, major repair, or replacement hard structural shoreline stabilization measures should minimize any long-term adverse impacts to ecological functions by incorporating the following measures into the design:~~
- ~~1) Limiting the size of hard structural shoreline stabilization measures to the minimum necessary, including height, depth, and mass.~~
  - ~~2) Shifting the bulkhead landward and/or sloping the bulkhead landward to provide some dissipation of wave energy and increase the quality or quantity of nearshore shallow-water habitat.~~
- ~~de. To the extent feasible and warranted by site-specific conditions, approved new and enlarged shoreline stabilization measures should mitigate any adverse impacts to ecological functions by incorporating the following measures at a minimum into the design:~~
- ~~1) To increase shallow-water habitat, install gravel/cobble beach fill waterward of the ordinary high water mark, grading slope to a maximum of 1 Vertical (V):4 Horizontal (H). The material should be sized and placed to remain stable and accommodate alteration from wind- and boat-driven waves.~~
  - ~~2) Plant native riparian vegetation at an average of ten (10) feet deep across, as necessary, in at least 50%75 percent of the width of the shoreline. Vegetation must include a mix of trees, shrubs and groundcovers, which may be distributed along the shoreline area in a manner that provides maximum benefit to fish and wildlife, while preserving views and water dependent uses 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 ordinary high water mark, but may be a minimum of five (5) feet wide to allow for variation in landscape bed shape and plant placement.~~

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 must be included in the plan. Plant materials must be native and selected from the Kirkland Native Plant List. An alternative planting plan or mitigation measure in lieu of meeting these requirements may be allowed if approved by other state and federal agencies.

- ef. The shoreline stabilization measure shall be designed to not significantly interfere with normal surface and/or subsurface drainage into Lake Washington.
- fg. The shoreline stabilization measure shall be designed so as not to constitute a hazard to navigation ~~or substantially interfere with visual access to the water.~~
- gh. Vegetation associated with or installed as mitigation for shoreline stabilization measures shall comply with the following standards:
  - i. 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 waters of Lake Washington and the shoreline on the opposite side of the Lake at the time of planting or upon future growth.
  - ii. Vegetation may be selected and positioned to maintain private views of the water by clustering low-growing vegetation in a selected area, provided that the minimum landscape standard is met.
- i. Stairs or other water access measures may be incorporated into the shoreline stabilization, but shall not extend waterward of the shoreline stabilization measure.
- hij. The shoreline stabilization measures shall be designed to ensure that the measures do not restrict appropriate public access to the shoreline, except where such access is modified under the provisions of KZC Section 83.370 for public access.

Additional mitigation measures may be required depending on the level of impact.

- g-ijk. Shoreline stabilization measures shall not extend waterward more than the minimum amount necessary to achieve effective stabilization.
- hkl. When a structural shoreline stabilization measures is required at a public access site, provisions for safe access to the water shall be incorporated into the shoreline stabilization structure design. Access measures should not extend farther waterward than the face of the shoreline stabilization structure.
- klm. When shoreline stabilization measures intended to improve ecological functions shift the ordinary high water mark landward of the pre-modification location, any structure setbacks from the ordinary high water mark or lot area for the purposes of calculating lot coverage shall be measured from the pre-modification location. The pre-modification ordinary high water mark shall be recorded in a form approved by the City Attorney and recorded in the King County Department of Elections and Records.
- l-mn. If shoreline stabilization measures intended to improve ecological functions shift the ordinary high water mark landward of the pre-modification location and result in expansion of the shoreline jurisdiction on any property other than the subject property, the plan shall not be approved until the applicant submits to the Planning Official a copy of a statement signed by the property owners of all affected properties, in a form approved by the City Attorney and recorded in the King County Department of Elections and Records, consenting to the shoreline jurisdiction creation and/or increase on such property.

6. Specific Hard Structural Shoreline Stabilization Design Standards - When hard structural shoreline stabilization measures, such as bulkheads, are demonstrated to be necessary, incorporate the following standards into the design:
- a. When shoreline stabilization is approved on a site where bulkheads are not located on adjacent properties, the construction of a bulkhead shall tie in with the existing contours of the adjoining properties, as feasible, such that the proposed bulkhead would not cause erosion of the adjoining properties.
  - ~~b.~~ When shoreline stabilization is approved on a site where bulkheads are located on adjacent properties, the proposed bulkhead may tie in flush with existing bulkheads on adjoining properties, provided that the new bulkhead does not extend waterward of OHWM, except as necessary to make the connection to the adjoining bulkhead. In such circumstances, the remaining portion of the bulkhead shall be placed landward of the existing OHWM such that no net intrusion into the lake occurs nor does net creation of uplands occur.
  - ~~c.~~ ~~Limit the size~~ The length of hard structural shoreline stabilization ~~measures~~ connections to ~~the minimum necessary, including height, depth, and mass.~~
  - ~~d.~~ ~~To the adjacent properties should be minimized to the maximum~~ extent ~~feasible, shift the bulkhead landward and slope the bulkhead landward to provide some dissipation of wave energy.~~
  - ~~e.b.~~ ~~When a bulkhead is required at a public access site, provisions for safe access to the water shall be incorporated~~ practicable, and extend into ~~bulkhead design~~ the subject property from adjacent properties no more than 10 feet.
  - ~~f.c.~~ Fill behind bulkheads 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.
7. Specific Soft ~~Structural~~ Shoreline Stabilization Design Standards – In addition to applicable general design standards and hard structural shoreline stabilization standards above, incorporate the following standards into the design:
- a. The soft shoreline stabilization design shall provide sufficient protection of adjacent properties by tying in with the existing contours of the adjoining properties to prevent erosion at the property line. Projects that include necessary use of hard structural shoreline stabilization measures only at the property lines to tie in with adjacent properties shall be permitted as soft shoreline stabilization measures. The length of hard structural shoreline stabilization connections to adjacent properties should be minimized to the maximum extent practicable, and extend into the subject property from adjacent properties no more than 10 feet.
  - b. The soft shoreline stabilization design shall size and arrange any gravels, cobbles, logs, and boulders so that the project remains stable in the long-term and dissipate wave energy, without presenting extended linear faces to oncoming waves.

### 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 or 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. Any undesirable effects or adverse impacts upon the environment or upon nearby waterfront properties from the structure are clearly outweighed by the benefits to the public provided by the moorage facility or other public water-dependent uses to be protected by the breakwater.
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 possible structure to meet the requirements of this chapter and accomplish the project's purpose. Also to be certified is that the design will result in the minimum possible adverse impacts upon shoreline ecological functions, 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 possible, to minimize the need for new and maintenance dredging.
2. Dredging and dredge material disposal waterward of the ordinary high water mark may be allowed for the following purposes and under the following circumstances:
  - 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 shall 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 ordinary high water mark 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 ordinary high water mark. The project must be associated with a significant habitat enhancement project.
  - e. Depositing dredge materials waterward of the ordinary high water mark may be allowed only in approved sites, only when the material meets or exceeds pollutant standards, and only for one (1) or more of the following reasons:
    - 1) For fish or wildlife habitat improvement, or
    - 2) For permitted beach enhancement.

3. 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 - In addition to the minimum application 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 ordinary high water mark and have data points at a minimum of 2-foot depth increments.
    - 2) A habitat survey must be conducted to identify aquatic vegetation, potential native fish spawning areas, or other physical or biological habitat parameters.
    - 3) Information on stability of lakebed adjacent to proposed dredging area.
  - c. A detailed description of the physical, chemical and biological characteristics of the dredge spoils to be removed.
    - 1) Physical analysis of material to be dredged: material composition and amount, grain size, organic materials present, source of material, etc.
    - 2) For projects exceeding 1,000 cubic yards or projects in areas that the City has reason to believe may contain higher levels of chemical contaminants, the following may be required:
      1. Chemical analysis of material to be dredged: including metals, organics, hydrocarbons, pesticides, etc.
      2. Biological analysis of material to be dredged.
  - d. A description of the method of materials removal, including facilities for settlement and movement.
    - 1) Dredging procedure: length of time it will take to complete dredging, method of dredging, and amount of material removed.
    - 2) Frequency and quantity of project maintenance dredging.
  - e. Detailed plans for dredge spoil disposal, including, but not limited to:
    - 1) Specific approved land or open-water disposal site.
    - 2) Total initial spoils volume.
    - 3) Plan for anticipated future maintenance dredging and disposal for at least a fifty (50)-year period.

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.

- a-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.
- b-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.
- c-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.
- d-e. Areas disturbed by permitted land surface modification in the shoreline setback shall be stabilized with approved vegetation.
- e-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.

## 2. Permitted Activities -

- a. Land surface modification is prohibited within the shoreline setback, except for the following:
  - 1) Land surface modification for the purpose of shoreline habitat and natural systems enhancement projects, setting back shoreline stabilization measures or portions of shoreline stabilization measures from the ordinary high water mark, or soft shoreline stabilization measures under a plan approved by the City.
  - 2) Land surface modification authorized by a valid shoreline permit or approval issued by the City.
  - 3) Except as is necessary during construction, dirt, rocks and similar materials may not be stockpiled on the subject property. If stockpiling is necessary during construction, it must be located as far as possible from the lake and strictly contained to prevent erosion and runoff.
  - 4) Land surface modification associated with the installation of improvements located within the shoreline setback or waterward of the ordinary high water mark, as permitted under KZC Section 83.180.4.d.
  - 5) Removal of prohibited vegetation.
  - 6) Land surface modification performed in the normal course of maintaining existing landscaping on a lot associated with an existing building or 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 include tree trimming, tree topping, tree cutting or tree removal, unless the City approves a tree removal under KZC Section 83.370.~~
    - d)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.

e)d) Does not result in erosion of the shoreline or undermine stability of neighboring properties.

f)e) Does not result in the compaction of existing soils in a manner that significantly decreases the ability of the soil to absorb rainfall.

g)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) Land surface modification that is necessary to maintain or upgrade the structural safety of an existing structure.

8) 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 flood water holding capabilities.
2. Fills landward and waterward of the ordinary high water mark 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 or public access use, including maintenance of beaches;
  - b. In conjunction with the expansion or alteration of transportation facilities of statewide significance currently located on the shoreline and then only upon a demonstration that alternatives to fill are not feasible;
  - c. As part of an approved mitigation or restoration project.
4. Any placement of materials landward of the ordinary high water mark 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 subsection 1. above:
  - a. Establishment or enhancement of native vegetation.

- b. Removal of non-native or invasive plants upland of the ordinary high water mark, 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 Restoration Plan, as adopted by the City Council on XX, under Ordinance XX.
- e. Implementation of any project or activity identified in the *Final WRIA 8 Chinook Salmon Conservation Plan* and related documents.



**Existing Zoning Code Bulk and Dimensional Standards**

Shoreline Environment	Zoning District	High Waterline Yard	Lot Coverage	Height	Minimum Lot Size
Urban Mixed	PR 3.6	Not applicable	70%	If adjoining a low density zone other than RSX, then 25' above average building elevation. Otherwise, 30' above average building elevation.	3,600 sq. ft./unit
	JBD 2	Not applicable	80%	26' to 39' if 30% view corridor provided	None
	JBD 3	Not applicable	80%	26' to 39' if 30% view corridor provided	3,600 sq. ft., with 2,400 sq. ft./unit
	JBD 4	?	80%	26' to 39' if 30% view corridor provided	3,600 sq. ft., with 1,800 sq. ft./unit
	JBD5	15' or 15% of average parcel depth, whichever is greater	80%	26'	3,600 sq. ft., with 1,800 sq. ft./unit
	CBD 1	Not applicable	100%	2-5 stories for Hotel/Motel, Stacked and Attached Dwelling Unit, and Assisted Living; otherwise 2-4 stories	None
	CBD 2	?	100%	2 stories <sup>1</sup>	None
	BN	Not applicable	80%	If adjoining a low density zone	None

<sup>1</sup> Along Lake Street South, north of Kirkland Avenue, buildings exceeding one story above Lake Street South shall demonstrate compliance with the Design Regulations of Chapter 92 KZC and all provisions of the Downtown Plan. Through Design Review (D.R.) the City shall find that any allowance for additional height is clearly outweighed by identified public benefits such as through-block public pedestrian access or through-block view corridors. In no case shall the height exceptions identified in KZC 50.62 and 115.60(2)(d) result in a structure which exceeds 28 feet above the abutting right-of-way South of Second Avenue South, maximum height of structure is three stories above Lake Street South as measured at the midpoint of the frontage of the subject property on Lake Street South. Buildings exceeding two stories shall demonstrate compliance with the design regulations of Chapter 92 KZC and all provisions of the Downtown Plan

Shoreline Environment	Zoning District	High Waterline Yard	Lot Coverage	Height	Minimum Lot Size
				other than RSX, then 25' above average building elevation. Otherwise, 30' above average building elevation.	
	PLA 15A	15' or 15% of average parcel depth, whichever is greater	80%	30' for detached dwelling unit; 30-40' for office and attached or stacked dwelling units <sup>2</sup> ; case-by-case for mixed use	5,000 for detached dwelling unit; 3,600 sq. ft./unit for attached and stacked du; Lot area/3,100 square feet for mixed use
	P			Case-by-Case	
Urban Residential	RM 1.8	15' or 15% of average parcel depth, whichever is greater	60 – 70% (depending on use)	If adjoining a low density zone other than RSX, then 25' above average building elevation. Otherwise, 30' above average building elevation.	3,600 sq. ft., with 1,800 sq. ft./unit
	RM 3.6	Not applicable	60 – 70%	If adjoining a low density zone	3,600 sq. ft./unit

<sup>2</sup> Structure height may be increased to 40 feet above average building elevation if:

- a. Obstruction of views from existing development lying east of Lake Washington Boulevard is minimized; and
- b. Maximum lot coverage is 80 percent, but shall not include any structure allowed within the required front yard under the General Regulations in KZC 60.170; and
- c. Maximum building coverage is 50 percent, but shall not include any structure allowed within the required front yard under the General Regulations in KZC 60.170 or any structure below finished grade; and
- d. A waterfront area developed and open for public use shall be provided with the location and design specifically approved by the City. Public amenities shall be provided, such as non-motorized watercraft access or a public pier. A public use easement document shall be provided to the City for the public use area, in a form acceptable to the City. The City shall require signs designating the public use area; and
- e. The required public pedestrian access trail from Lake Washington Boulevard to the shoreline shall have a trail width of at least six feet and shall have a grade separation from the access driveway; and
- f. No roof top appurtenances, including elevator shafts, roof decks or plantings, with the exception of ground cover material on the roof not to exceed four inches in height, shall be on the roof of the building or within the required view corridors.

Shoreline Environment	Zoning District	High Waterline Yard	Lot Coverage	Height	Minimum Lot Size
			(depending on use)	other than RSX, then 25' above average building elevation. Otherwise, 30' above average building elevation.	
	WD I	15' or 15% of average parcel depth, whichever is greater	80%	30' for detached dwelling unit; otherwise 30-35' <sup>3</sup>	3,600 sq. ft./unit
	WD III	15' or 15% of average parcel depth, whichever is greater	80%	30' for detached dwelling unit; otherwise 30-35' <sup>4</sup>	3,600 sq. ft./unit
	PLA 6A	Not applicable	60 – 70% (depending on use)	If adjoining a low density zone other than RSX, then 25' above average building elevation. Otherwise, 30' above average building elevation.	3,600 sq. ft., with 1,800 sq. ft./unit
	PLA 6I	Not applicable	60 – 70% (depending on use)	30'	3,600 sq. ft., with 2,400 sq. ft./unit
	PLA 6H	Not applicable	60 – 70% (depending on use)	25'	5,000 square feet for detached dwelling unit;

<sup>3</sup> Structure height may be increased to 35 feet above average building elevation if the increase does not impair views of the lake from properties east of Lake Washington Boulevard; and

a. The increase is offset by a view corridor that is superior to that required by the General Regulations; or

b. The increase is offset by maintaining comparable portions of the structure lower than 30 feet above average building elevation.

<sup>4</sup> Structure height may be increased to 35 feet above average building elevation if the increase does not impair views of the lake from properties east of Lake Washington Boulevard; and

a. The increase is offset by a view corridor that is superior to that required by the General Regulations; or

b. The increase is offset by maintaining comparable portions of the structure lower than 30 feet above average building elevation.

Shoreline Environment	Zoning District	High Waterline Yard	Lot Coverage	Height	Minimum Lot Size
					2 acres with 3,600 sq. ft./unit
	PLA 3B	15' or 15% of average parcel depth, whichever is greater	80%	30' for detached dwelling unit; otherwise 30-35' <sup>5</sup>	3,600 sq. ft./unit
Low Density Residential	WD II	15', 15% of average parcel depth, or average of adjoining lots, whichever is greater	50%	25'	12,500 sq. ft.
	RS 5.0	Not applicable	50%	25'	5,000 sq. ft.
	RS 12.5	Not applicable	50%	25'	12,500 sq. ft.
Urban Conservancy	P			Case-by-Case	
	RM 1.8	15' or 15% of average parcel depth, whichever is greater	60 – 70% (depending on use)	If adjoining a low density zone other than RSX, then 25' above average building elevation. Otherwise, 30' above average building elevation.	3,600 sq. ft., with 1,800 sq. ft./unit
Natural	P			Case-by-Case	
	PLA 3A				
	PLA 2				
	RS 12.5	Not applicable	50%	25'	12,500 sq. ft.

<sup>5</sup> Structure height may be increased to 35 feet above average building elevation if the increase does not impair views of the lake from properties east of Lake Washington Boulevard; and  
a. The increase is offset by a view corridor that is superior to that required by the General Regulations; or  
b. The increase is offset by maintaining comparable portions of the structure lower than 30 feet above average building elevation.

Existing SMP Bulk and Dimensional Standards

Shoreline Environment	Existing SED	High Waterline Yard	Lot Coverage	Height	Minimum Lot Size
Urban Mixed	Urban Mixed 1	15' or 15% of average parcel depth, whichever is greater <sup>6</sup>	N/A	35' above average grade level for detached dwelling unit; otherwise 41' above average grade level	3,600 sq. ft. for detached dwelling unit; 7,200 sq. ft., with 1,800 sq. ft./unit
	Urban Mixed 2	15' or 15% of average parcel depth, whichever is greater; or for mixed-use developments determined on a case-by-case basis based on the compatibility of the development with adjacent uses and the degree to which public access, use and views are provided.	N/A	35' above average grade level for detached dwelling unit; 30-35' for attached/stacked dwelling units <sup>7</sup> ; or for mixed-use developments determined on a case-by-case basis based on the compatibility of the development with adjacent uses and the degree to which public access, use and views are provided.	3,600 sq. ft. for detached dwelling unit; 7,200 sq. ft., with 3,600 sq. ft./unit

<sup>6</sup> For attached or stacked dwelling units, balconies at least 15' above finished grade may extend up to 4' into the high waterline yard

<sup>7</sup> Height may be increased from 30 to 35' if the increase does not impair the views of the lake from properties east of Lake St S or Lake Washington Blvd.

Shoreline Environment	Existing SED	High Waterline Yard	Lot Coverage	Height	Minimum Lot Size
Urban Residential	Urban Residential 1	views are provided. 15' or 15% of average parcel depth, whichever is greater	N/A	35' above average grade level for detached dwelling unit; otherwise 30-35' <sup>8</sup>	3,600 sq. ft for detached dwelling unit; 3,600 sq. ft., with 3,600 sq. ft./unit
	Urban Residential 2	15' or 15% of average parcel depth, whichever is greater	N/A	35' above average grade level for detached dwelling unit; 30-35' for attached/stacked dwelling units <sup>9</sup>	3,600 sq. ft for detached dwelling unit; 3,600 sq. ft., with 3,600 sq. ft./unit
Low Density Residential	Suburban Residential	15', 15% of average parcel depth, or average of adjoining lots, whichever is greater	N/A	25' above average grade level	12,500 sq. ft.
Urban Conservancy	Suburban Residential; Urban Residential 1 and Urban Mixed 1	Case-by-case	Case-by-case	Public parks in SR – structures may not exceed a height of 25' above average grade level Public parks in UM 1 – structures shall not exceed a height of 41' above average parcel grade level Otherwise, 35' above average parcel grade level	Case-by-case
	Natural	Conservancy 1	N/A	25' above average grade level	35,000 sq. ft. per unit

<sup>8</sup> Height may be increased from 30 to 35' if the increase does not impair the views of the lake from properties east of Lake St S or Lake Washington Blvd.

<sup>9</sup> Height may be increased from 30 to 35' if the increase does not impair the views of the lake from properties east of Lake St S or Lake Washington Blvd.

Shoreline Environment	Existing SED	High Waterline Yard	Lot Coverage	Height	Minimum Lot Size
	Conservancy 2	depth, whichever is greater 100' and 50' from the canal	N/A	35' above average grade level for detached dwelling unit; 25' above average grade level for attached/stacked	35,000 sq. ft. per unit

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Last Saved: Friday, March 06, 2009



**24.05.140 General regulations—Land surface modification.**

(a) General. The regulations of this section apply to proposed land surface modifications landward of the high waterline. See Sections [24.05.185](#) and [24.05.195](#) of this chapter for regulations that apply to land surface modification waterward of the high waterline (dredging and filling) and Section [24.05.180](#) of this chapter regarding land surface modification incidental to the construction of a bulkhead or other shoreline protective structures.

(b) Land Surface Modification Within the High Waterline Yard. Land surface and modifications within the high waterline yard may be permitted only if no unique or significant natural area of flora or fauna will be destroyed and only for the following purposes:

(1) The land surface modification is proposed by a public agency to improve public safety, recreation or access.

(2) The land surface modification is part of a development on the subject property and is to improve access to a pier, dock or beach.

(3) The land surface modification is necessary to provide public pedestrian access or a public use area.

(4) The land surface modification is necessary for the structural safety of a structure.

(5) There has been severe and unusual erosion within the one year immediately preceding the application and the land surface modification is to restore the shoreline to its configuration prior to this erosion.

(c) Land Surface Modification Landward of the High Waterline Yard. Land surface modification landward of the high waterline yard is only permitted if it is necessary for an approved development or use of the subject property or if it is incidental to landscaping for an existing use on the subject property.

(d) Additional Regulations. All land surface modifications landward of the high waterline must comply with the following requirements:

(1) The land surface modification must be the minimum necessary to accomplish the underlying reason for the land surface modification.

(2) Care must be taken to not create any direct or indirect adverse impacts on any adjoining property or Lake Washington.

(3) All surfaces exposed during land surface modification must be revegetated or otherwise covered as quickly as possible to minimize erosion.

(4) During land surface modification activities techniques should be employed to prevent erosion and runoff onto adjacent properties or into Lake Washington.

(5) Except as is necessary during construction, dirt, rocks and similar materials may not be stockpiled on the subject property. If stockpiling is necessary during construction, it must be located as far as possible from the lake and strictly contained to prevent erosion and runoff.

(6) Material that will be deposited on the subject property must be clean and not contain organic or inorganic substances that could pollute Lake Washington or otherwise be detrimental to water quality or aquatic or shoreline habitats.

(7) The city may require that land surface modifications be engineered and/or supervised by an engineer or similarly qualified professional.

(e) Land Surface Modifications in Conservancy Shoreline Environments. Notwithstanding any other provision of this section, land surface modification in Conservancy Shoreline Environments should not be allowed unless:

(1) It is necessary to rehabilitate a stream or otherwise improve or enhance the natural environment; or

(2) It is proposed by a public agency as part of development or use of the subject

property. (Ord. 3153 § 1 (part), 1989; Ord. 2938 § 1 (part), 1986)

## Teresa Swan

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**From:** RLSTYLE [rlstyle@aol.com]  
**Sent:** Wednesday, January 21, 2009 3:42 PM  
**To:** Teresa Swan  
**Subject:** Shoreline 1-22-09 citizen update

Shoreline update (1-21-09)

Ref: 83.300 2a: The 10-foot waver for geotech reports pertains to so few existing properties; it doesn't achieve the goal protecting existing property rights. You've whitewashed the staff report and have ignored the request from shore owners. The shoreline setback has been 15 feet for more than 20 years and affects many homeowners. The waver for geotech reports should be 15 feet.

It's important to acknowledge existing conditions. To impose additional onus on the property owners who live on the shoreline who have developed according to existing rules and regulations should not be punished for obeying the law. I have not seen any justification for reducing the 15-foot setback to 10 feet making the 10-foot rule arbitrary and capricious since there has not been a public hearing on shoreline setbacks. During that hearing, the commission should recommend and honor the existing 15-foot setback of those who live on the shoreline in Kirkland. Do not turn your backs on them especially when there is no reason to change, perceived or otherwise. The difference of 5 feet will have little of no adverse environmental impacts.

There are many references to the 10-foot rule throughout the staff report. Change all the references to 15 feet if you care about Kirkland. There will not be any additional net loss from what there is now.

Almost all of Kirkland needs protection from wave action. For additional "demonstrated need" reports to show how erosion over 3 years will negatively impact properties and therefore is necessary to protect single-family homes is ridiculous. We already know what happens if bulkheads are not allowed. It's time you acknowledged what we already know when wave heights exceed above 2 feet and/or the wind exceeds 25 MPH from the SW or NW.

2b: Repairs of bulkheads should allow 100% of bulkheads to be repaired without being categorized as a "major" modification. All the property needs protection, not just 75%, and since they are repairs, they should be exempted from additional geotech requirements regardless of how far the home is from the shoreline.

Ref: 5d General Design Standards: Patios not higher than 4 inches are allowed and should be allowed to within 5 feet from the water. They should not be prohibited. Just how much benefit shoreline vegetation provides is questionable if the vegetation will shade areas that the city and DOE have acknowledged that need sunlight. The sunlight requirements are incorporated in the proposed dock regulations. The width of native riparian vegetation should be 5 feet, not an average of 10 feet and far less than 75 percent in length. I don't know why you chose the depth and width criteria. I think it was arbitrary and capricious and certainly should not be adopted unless there is a public hearing.

Para 5f is extremely vague. Just what is meant when shoreline stabilization **substantially interferes with visual access to the water?** What is meant by "substantially?" What is meant by visual access? It would be nice if you used language that is more precise. Any vegetation should not be higher than 3 feet as to not block views. If the height exceeds 3 feet, vegetation will only be placed in the side yard setbacks. Existing vegetation should be preserved when possible.

Before preceding any further with what you think will be acceptable to DOE, please define no net loss. Fingerlings swim the shores of Lake Washington, and many other locations, eagles still fly, and species such as muskrats, beavers, nutria, and milfoil, lily pads are being reduced and relocated because they are incompatible with development. Much has already been lost so what more is needed. As long as what we adopt doesn't result in a net loss on top of what has already occurred, we are in compliance with DOE. If we are not, let them prove it.

It's hard for me to see just how you are working for the City of Kirkland. The DOE and the environment may be a higher calling over local regulations but only if what they require complies with the best management practices, the best available science, and include the laws of physics. And, if mandated by them, let them fund all the improvements they think are necessary.

Sincerely,

Robert L. Style  
6735 Lake Washington Blvd, NE  
Kirkland, WA 98033  
425-827-0216

**Teresa Swan**

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**From:** Daved [Daved@waterfrontconstruction.com]  
**Sent:** Thursday, January 22, 2009 12:35 PM  
**To:** Cathy Beam; MPaine@bellevuewa.gov; Stacy Clauson; peterr@ci.issaquah.wa.us; jding@ci.kenmore.wa.us; rgrumbach@ci.medina.wa.us; EConkling@ci.renton.wa.us; mvannostrand@ci.sammamish.wa.us; Margaret.glowacki@seattle.gov; mhgreen@comcast.net; Harry.reinert@kingcounty.gov; Michelle Whitfield; SBennett@ci.lake-forest-park.wa.us; Paul Stewart; travis.saunders@mercergov.org; White, Jean; george.steiner@mercergov.org; Burcar, Joe (ECY); Matt.torpey@mercergov.org; Teresa Swan  
**Cc:** eride@msn.com; donovan@donovantracy.com; raa@vnf.com; Dennis Reynolds; Ken Sethney  
**Subject:** PUGET SOUND PARTNERSHIP PLANS FOR POSSIBLE OVERTAKE OF LOCAL GOVERNMENT SHORELINES AND AUTHORITY  
**Attachments:** PSP Response.doc; Coalition Power Point--Oct 2008.pdf

Dear Local SMP Contacts and Interested Parties,

Hope everyone is having a great week.

You may already know about the Puget Sound Partnership but if you haven't reviewed the Draft 2020 Action Agenda for Puget Sound they are going to be requesting billions of taxpayer dollars to implement an aggressive agenda then you may find it some interesting reading. Public comment was given and no acknowledgment or replies were received and they approved the draft and forwarded it to the legislature on December 1, 2008 for review and adoption.

It appears to be another example of targeting private property owners and failing to address the primary causes of water quality degradation and impacts to fish and habitat. They seem to be directing most of their efforts at residential bulkheads and piers similar to what DOE is doing with the SMP Updates. If you haven't read the original 95 page agenda that is now 207 pages sent to the legislature you might find it interesting. It does very little to address impacts from aquaculture and businesses that contribute significantly to the region's economic base and point sources of pollution. The document also uses the "no net loss" term being used for the SMP Updates.

Although it is named the "Puget Sound" Partnership it also pulls in the watersheds and Lake Washington and Sammamish are included in the South Central Puget Sound Area. This means the state could take regulatory control of your shorelines and your citizens. Of course it doesn't come right out and say that but none of us were born yesterday. You owe it to your citizens to do some research and discuss this with your local leaders and decide where you will stand on the issue. It will probably be more controversial than the SMP Updates (which by the way are listed in the agenda matrix as one of their targets so the updates are just a routine requirement

The Puget Sound Partnership is including everyone except the shoreline property owners who will be most impacted. They hope to either restrict or eliminate residential piers and bulkheads or require them to go through the Conditional Use Process where the state will approve or deny them.

The link to the agenda is: [http://www.psp.wa.gov/downloads/ACTION\\_AGENDA\\_2008/Action\\_Agenda.pdf](http://www.psp.wa.gov/downloads/ACTION_AGENDA_2008/Action_Agenda.pdf)

I have attached my comments to the PSP and as stated did not receive acknowledgment or a response (no surprise there). I also included an interesting slide show from the Coalition to Protect Puget Sound Habitat showing the damage from aquaculture that is far more impacting than any amount of piers and bulkheads.

If you aren't interested please delete this correspondence.

Thanks and have a great day.

Sincerely,  
Dave Douglas  
Permit Coordinator  
Waterfront Construction, Inc.



**Teresa Swan**

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**From:** RLSTYLE [rlstyle@aol.com]  
**Sent:** Tuesday, January 27, 2009 11:21 AM  
**To:** KirklandCouncil  
**Cc:** Teresa Swan; Eric Shields  
**Subject:** Fwd: Shoreline Master Plan updates  
**Attachments:** RE: Shoreline Master Plan updates

Honorable Councilmembers:

I sent Rep. Eddy and other state reps this message about the Shoreline Master Plan. Ignoring all the personal differences, the first line of her response is what is important. It says **she does not disagree that the state should help fund the SMA process.** For her not to see the connection between the state's requirement and the city update contradicts her first sentence and is ludicrous. Also, I'm not complaining about having to pay for my mitigation's; just what I had to pay for the benefit of others like Rep. Eddy who don't pay.

I would hope that staff, the Planning Commission, and ultimately you pursue substantial funding from the state for the improvements you adopt. If not, then the improvements that benefit all those who use the lake should be adopted on the condition that the state provide the funds. Otherwise, no.

Sincerely,

Robert L. Style  
6735 Lake Washington Blvd, NE  
Kirkland, WA 98033  
425-827-0216



**Teresa Swan**

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**From:** Daved [Daved@waterfrontconstruction.com]  
**Sent:** Wednesday, January 28, 2009 2:49 PM  
**To:** Daved; Cathy Beam; MPaine@bellevuewa.gov; Stacy Clauson; peterr@ci.issaquah.wa.us; jding@ci.kenmore.wa.us; EConkling@ci.renton.wa.us; mvannostrand@ci.sammamish.wa.us; Margaret.glowacki@seattle.gov; mhgreen@comcast.net; Harry.reinert@kingcounty.gov; Michelle Whitfield; SBennett@ci.lake-forest-park.wa.us; Paul Stewart; travis.saunders@mercergov.org; White, Jean; george.steierer@mercergov.org; Burcar, Joe (ECY); Matt.torpey@mercergov.org; Teresa Swan; Robert Grumbach; DBent@ci.kenmore.wa.us  
**Cc:** eride@msn.com; donovan@donovantracy.com; raa@vnf.com; Dennis Reynolds; Ken Sethney; Gregory W. Ashley  
**Subject:** SLIDE PRESENTATION ON THE "SHORELINE PERMITTING PROCESS"

Dear SMP Points of Contact and Interested Parties,

If you are interested, I have created a thorough and informative slide presentation entitled, **The Shoreline Permitting Process; A System of Checks and Balances; "An Applicant's Perspective"**. I am available to present any of the 3 presentations (Standard, Condensed and Further Condensed) for your audience. It can be presented as a part of a study session prior to your council or commission meetings or during the regular meeting time.

I am offering this because after attending dozens of SMP Update meetings along with a company meeting with DOE staff and speaking with multiple planners and property owners I have discovered most people are unfamiliar with the local, state and federal regulatory permitting process or have not taken the time or invested the effort to evaluate the vast improvements made over the last 5 to 10 years along the shorelines of Lake Washington and Lake Sammamish. This and the use of "best available science", from white papers which when read are inconclusive at best, has resulted in bulkheads and piers on private property being targeted for sweeping changes that will impact every local government and its citizens. People are only told the bad and improvements are never recognized or rewarded in this type of business or for this group of private property owners. Reference photos are usually those of older and large piers built many years ago to paint the worst picture in people's minds.

Following meetings in Seattle and Kirkland over a year ago I realized there was a lot of imbalance and misinformation being distributed to local governments and SMP decisions are being made by a small number of well-meaning but uninformed or misdirected parties who may be unfamiliar with the process. Attendance by waterfront property owners and the general public was sparse (and still is) and most people in this group did not understand how the future use and value of their properties would be impacted. SMP Updates could very well have been discussed and approved in a "smoke filled room at midnight" to coin an appropriate phrase. All of this would be done at the expense of an unsuspecting and trusting public.

It is important for local government leaders and staff to understand that the responsibility of protecting natural resources is not resting solely on their shoulders and to adopt an overly restrictive SMP will turn control of their shorelines over to the state because most existing structures will become legally nonconforming and many new and replacement structures, even if they are an improvement over existing conditions, will require a variance. The term "no net loss" was being used without clarity and there was no discussion supporting the fact that replacement structures, both piers and bulkheads, could meet this DOE requirement.

**The presentation was done for the Kirkland Planning Commission on January 22, 2009 and it seemed to go very well. It resulted in excellent discussion, a lot of good questions and the Commissioners expressed appreciation. It was scheduled for 15-20 minutes but with discussion lasted nearly 1 hour and 15 minutes.** It was a very cordial atmosphere and Joe Burcar from DOE and Tom Sibley from NMFS were also in attendance. The City of Kirkland is doing an excellent job in addressing their property owner concerns and gathering all available information and listening to all sides. They are trying to fully understand the impacts of their decisions and protecting the community and I believe the presentation assists to that end.

Please note that it is a very honest and transparent presentation from the applicant's perspective based on my 6+ years of representing waterfront property owners in working for Waterfront Construction on over 300 projects. It also includes photos of some recent pier, bulkhead and shoreline renovation projects completed since the establishment and review of projects under the Endangered Species Act, the 2003 SMA Guidance from DOE, and the Corps Regional General

Permits for Residential Piers and Watercraft Lifts. It includes the positive and negative aspects of the current permitting process.

At this time it looks as though I may be doing the presentation for Bainbridge Shoreline Homeowners, Renton, Issaquah and Kenmore. I wish I could have offered the presentation before Redmond and Lake Forest Park got so far along in their update process because it may have impacted some of their decisions. Depending on where they are in the process with DOE there may still be time.

**This offer of single or multiple presentations is being made to Councils, Commission, General Public, Homeowners Associations or interested parties in the following areas: Bellevue, Hunts Point, Issaquah, Kenmore, Kirkland (Houghton), Lake Forest Park, Medina, Mercer Island, Redmond, Renton, Sammamish, Seattle, Yarrow Point, King County, Pierce County, Kitsap County, and Bainbridge Island.**

Every Planning Commissioner, City/County Council Member and citizen should have an understanding of the shoreline permitting process from the ground level and this offers them the opportunity. I look forward to hearing from you. I am available most evenings with limited Wednesdays. I am unavailable from Feb 26 through March 7 and July 17 through July 27. The owner of Waterfront Construction is covering my time and expenses so there is no cost for the presentation. Please let me know as soon as possible. I look forward to hearing from you.

Working with you to ensure SMP Updates are accomplished with the integrity, honesty and balance your citizens deserve.

Sincerely,  
Dave Douglas  
Permit Coordinator  
Waterfront Construction, Inc.

Richard K. Sandaas  
12453 Holmes Point Drive  
Kirkland, WA 98034  
425.823 2145  
[eride@msn.com](mailto:eride@msn.com)

February 7, 2009

Kirkland Planning Commission  
Paul Stewart, Deputy Director of Planning  
Teresa Swan, Senior Planner  
Stacy Clauson, Contract Planner  
City of Kirkland  
123 Fifth Avenue  
Kirkland, WA 98033

Reference: Kirkland's Shoreline Master Program Update

Dear Planning Commission members and staff:

I first commented on Kirkland's SMP update process in a letter sent on October 3, 2006. I raised concerns about the scientific basis being used and stated:

*"Conclusions must be supported by sound science.  
The draft Inventory contains a number of suppositions,  
inferences, and hypotheses".*

Over the nearly two and a half years since, I have continually raised this issue, most recently in my letter of January 8, 2009. The packet prepared for the Planning Commission Study Session on January 22, 2009 contained a response to this most recent letter where I again questioned the scientific basis supporting the SMP updates.

I have reviewed the materials cited in the Study Session packet and do not find any scientific study that is specific to salmon migration or presence along Kirkland's shoreline. Here is my analysis of these citations which began on page 27 of the packet:

Shoreline Analysis Report (Inventory)

This report, in Section 5.2.1, describes the travel of Chinook fry. It says they

*“...congregate near the mouths of tributary streams and prefer low gradient, shallow-water habitats with small substrates.”*

It goes on to state:

*“...they do not disperse far from the mouth of their natal stream...”*

Then,

*“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, Forbes, or Yarrow Creeks would depend on nearshore habitats of the Kirkland waterfront.”*

Most of the Chinook salmon that migrate through Lake Washington travel to and from the Cedar River. Much small numbers have Bear Creek, the Sammamish River, and Lake Sammamish as their origin and destination. And as the citation in the *Inventory* states, these fish do not disperse to the Kirkland shoreline. As for Chinook fry from Juanita, Forbes, or Yarrow Creeks, neither their numbers or their travel patterns have been studied or documented.

Links to Available Maps

The first three links are to maps which are intended to show distribution of Chinook, Sockeye, and Coho salmon in Lake Sammamish, Lake Washington, and mid-Puget Sound. This distribution is indicated by a scattering of dots throughout these water bodies. I challenge the use of these maps to draw any scientific conclusions about migratory patterns of salmon along Kirkland's shoreline because of their high level array with lack of any detail on a specific area. Furthermore, this disclaimer appears on each map:

*“This map is not warranted as fit for a particular purpose.”*

I was unable to access the fourth link as depicted. I did locate a document, *Lake Washington and Ship Canal Acoustic Tracking*, December 2008, which studied Chinook salmon migration from the Cedar River, through Lake Washington, and into the Ship Canal. This report makes it clear that none of the Chinook from the south end of the lake travel anywhere near the Kirkland shoreline. Regarding Chinook from other tributaries, the report states:

*“In addition, small numbers of Chinook salmon spawn in several tributaries to Lake Washington and Lake Sammamish, but juvenile production from these streams is unknown.”*

It goes on to state on page 3:

*“However, little research has been conducted to understand habitat use or finer-scale movement patterns of juvenile Chinook salmon during their migratory phases in late-May, June and July. Various methods such as snorkeling and hydro acoustic surveys have been tried to study the habitat use patterns of juvenile Chinook salmon after mid-May but these efforts were met with limited success.”*

I was also unable to access the fifth link, the WDFW SalmonScape map. This was said to document fish use of Kirkland streams. It does not mention fish travel along the shoreline.

#### Roger Tabor comments

Mr. Tabor is with the U.S. Fish and Wildlife Service and is one of the parties who prepared the *Lack Washington and Ship Canal Acoustic Tracking* report mentioned above (which finds little research done on Chinook salmon movement). He also is a contributor to the *Synthesis of Salmon Research and Monitoring* report, which finds that little is known about outmigration of Coho, sockeye, and steelhead. A review of this report follows.

In views of his involvement in these studies, I find his shown comment on page 29 of the January 22, 2009 packet to be curious:

*“It seems logical that Chinook are all over the lake. The only way Chinook could entirely miss Kirkland is that if all the hatchery and naturally-produced fish from the eastside decided to only use the west shoreline of Lake Washington, which is highly unlikely”.*

Page 4

Here is my counter-supposition to his:

*It seems logical that after remaining at the mouth of the Sammamish Slough for a period of time, the emigrating eastside fry would begin their travel to the Ship Canal by traveling along the shoreline of St Edwards Park and then move through deeper water towards Magnuson Park and then south along the western shoreline to Webster Point to begin their journey to the Locks. While some may stray elsewhere in the lake for a brief period,, this path would seem to be the most likely way for their journey to the Ship Canal and Locks.*

My supposition is supported by several studies that I reviewed. The point here is that until a conclusive study of the so-called eastside Chinook is performed, with the same scope and effort of the December, 2008 study for the Cedar River Chinook, there is no sound science documenting “eastside” Chinook behavior along Kirkland’s shoreline or the rest of Lake Washington. This also applies to Coho, steelhead, and sockeye as noted below.

Scientific Studies, page 29

A point is highlighted in the packet that “scientific information continues to be developed.” It was pointed out that since the year 2000 other studies have been conducted. This is in reference to a literature search that had been cited by a letter from Futurewise (to which I responded) that was conducted in 2000.

To that point I have located a very recent study titled *Synthesis of Salmon Research and Monitoring. Investigations Conducted in the Western Lake Washington Basin. December 31, 2008*. Here are several important findings:

Page 4. Table showing Major Research Findings.

Under the heading Lake Washington Outmigration, it states:

*“Little is known about the outmigration of Coho, sockeye, or steelhead.”*

Page 5

Page 41. Coho Salmon and Steelhead.

*“Not much information is known about the habitat use of Coho salmon and steelhead in Lake Washington.”*

Page 44. Habitat Use and Behavior.

*“Observations of migrating Chinook indicate that these fish aggregate and move along the shoreline during the day, generally in water depths of 6.8 feet to 14.8 feet”*

Page 45. Habitat Use and Behavior.

*“Outmigration behaviors of sockeye, Coho, and steelhead have not been studied in Lake Washington.”*

This analysis of the January 22, 2008 packet show that many unanswered questions remain about salmon migration in Lake Washington along the Kirkland shoreline, and that there is a lack of sound science that is fully vetted to support and justify the remediation and restoration approaches that are being developed in the SMP update process.

Both the Department of Ecology and WRIA8 have put the jurisdictions on Lake Washington in a difficult position by “playing the salmon card”. DOE has imposed the precautionary principle that is most unreasonable and unrealistic. It is a “press on regardless” line of thinking. And WRIA8 has designated Kirkland’s shoreline as a Tier 1 migratory corridor, absent studies to support that. As it now stands, decisions on the SMP updates are being based on policy, not science.

It is important for the Kirkland Planning Commission members and the City Council to be fully aware of the scientific basis that is being used to support the SMP goals, policies, and resulting regulations. All members should review the studies that are cited, understand what is known and what is not known. Then, if it is the decision to move forward with regulations that drive towards “green shorelines” so be it. At least it will be a fully informed decision, but one that will drive the expenditure of millions of dollars by Kirkland shoreline property owners and all the other Kirkland taxpayers for “shoreline enhancements” with questionable salmon based environmental and ecological benefits.

Page 6

Lake Washington must be protected and enhanced. In the past, millions of dollars were spent to restore its health through the Metro clean up program. The threats were known and the solutions were crafted to deal with them. Today, limited public and private dollars must be spent wisely, targeted at real threats so that successful outcomes are assured.

And the real threats of stormwater runoff, non-point pollution, and invasive weeds remain.

In providing these comments I once again want to make it clear that, as a shoreline property owner, no one has a greater interest in the protection and enhancement of our shoreline and the ecology of Lake Washington. Along with other SPOCA members, we want to continue to work with you to achieve feasible, effective, and beneficial goals and policies resulting from the SMP process.

Very truly yours,

Richard K. Sandaas  
Chair, SPOCA  
Shoreline property owner

## Teresa Swan

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**From:** Melanie Gelow [mlgelow@verizon.net]  
**Sent:** Thursday, February 26, 2009 9:09 AM  
**To:** Teresa Swan  
**Subject:** Bulkhead replacement and repair

Teresa,

A number of us who live on the lake are "old-timers". We are not members of the newly rich and as such would find it a financial hardship to have to rebuild a perfectly good bulkhead should we decided to tear down and rebuild our homes. With real estate taxes already approaching 20 grand a year we are finding it hard to just stay in our houses as it is, particularly for retirees. Some are just a "disaster" away from being to foreced to sell our homes (such as an expensive bulkhead repair).

Please don't force us to have to rebuild our bulkheads.

Gary Gelow



**Teresa Swan**

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**From:** Richard Sandaas [eride@msn.com]  
**Sent:** Friday, February 27, 2009 3:27 PM  
**To:** Paul Stewart; Teresa Swan; Stacy Clauson  
**Subject:** Science and the SMP Updates  
**Attachments:** SHORELINE MASTER PROGRAM UPDATES Science Green Shorelines.doc

Dear Paul, Teresa, and Stacy:

As you know, for some time I have been concerned about the scientific basis being used to support the SMP Update processes.

In my recent correspondence I outlined several points and following that I decided to do further review of a number of studies, including the two most recent ones released this past December. This confirmed that there are indeed issues, more than I expected.

Attached is a paper that I have authored regarding the science being used to support the SMP process along with some discussion about the Green Shorelines movement. You will see that I have specific citations from a number of studies which substantiate my concerns.

The Planning Commission members and the City Council should take the time to review these studies so that they understand their applicability and relevance to the specific characteristics of Kirkland's shoreline.

Let me know if you'd like to discuss this. I'd be happy to do so.

Regards,  
Dick Sandaas



## SHORELINE MASTER PROGRAM UPDATES

### SCIENCE AND GREEN SHORELINES

The SMP update processes being conducted by the local governments on Lake Washington are leading to policies and regulations calling for removal of hardened shorelines and replacement with beaches; shoreline landscaping intended to provide shade, while at the same time requiring modification of piers to reduce shading; the reduction of piers, both in size and number; and placement of woody debris along the shoreline. The result will be the expenditure of millions of dollars by shoreline property owners and taxpayers. It also results in loss of usable shoreline and uplands by both private property owners as well as park users.

The drivers behind this are guidance and directives from the Department of Ecology and WRIA 8 taken from research and studies with the focus on salmon habitat. Even though DOE is requiring local governments to use “all available technical and scientific information” and to “solicit additional information through the public participation process”, the body of science and research is not complete, contains suppositions and hypotheses, is sometimes contradictory, and cannot be applied broadly to all shoreline locations on Lake Washington. WRIA 8 has identified the Kirkland shoreline as a Tier 1 Migratory Corridor, but have studies been conducted to support that?

### SCIENCE AND ITS DEFICIENCIES

#### VETTING OF SCIENCE

A number of researchers have been studying Lake Washington for many years. Their studies have found their way into a body of knowledge that is widely used, yet a vetting process for these studies and research is yet to be reported. If these studies are to be the basis for actions that will cost millions of dollars, it is reasonable to expect that a vetting process be conducted. An example is the vetting of science developed for the Columbia River. Here the Northwest Power Planning Council has implemented an Independent Science Review Board to review all studies that are being utilized. With so much at stake a similar process should be invoked for the Lake Washington studies.

#### AREA SPECIFIC STUDIES – WHERE DO THE FISH TRAVEL?

The DOE Guidance Fall 2008 cites one study which “focuses on the affects of shoreline alterations to salmon migration” implying its applicability to all parts of Lake Washington and Lake Sammamish.<sup>1</sup> Yet this study was conducted for Cedar River Chinook salmon at the south end of Lake Washington. A close reading of the study and its conclusions shows considerable unanswered questions.

There are several other studies which are also specific to the Chinook at the south end of Lake Washington and one documents their migration along the western shore of Lake Washington past Seward Park to the Ship Canal.<sup>2 3</sup> These localized studies are being used in SMP update processes as a basis for actions elsewhere on the lake, far away from the migratory route that these Chinook utilize, and these fish are the majority of Chinook found in Lake Washington.

As to where fish travel in other parts of Lake Washington, here are excerpts from other studies:

The distribution of juvenile Coho salmon in Lakes Washington and Sammamish **is poorly understood.**<sup>4</sup>

“...small numbers of Chinook salmon spawn in several tributaries to Lake Washington and Lake Sammamish but juvenile production from these streams **is unknown.**”<sup>5</sup>

“**However little research has been conducted** to understand habitat use or finer-scale movement patterns of juvenile Chinook salmon during their migratory phase in late-May, June, and July.”<sup>6</sup>

**Not much information is known** about the habitat use of Coho salmon and steelhead in Lake Washington.<sup>7</sup>

Outmigration behaviors of sockeye, Coho, and steelhead **have not been studied** in Lake Washington.<sup>8</sup>

Juvenile Chinook in the North Lake Washington population are less shoreline-oriented than juveniles from the Cedar River. **More information is needed** about the trajectories of NLW juvenile Chinook in Lake Washington, particularly when they move offshore.<sup>9</sup>

#### EFFECTS OF PIERS AND BULKHEADS ON SALMON

Study Excerpts:

**No studies were located that specifically investigated** the effects of piers and armored shorelines on the migration of juvenile Chinook and Coho salmon along lakeshores.<sup>10</sup>

**The question remains** whether juvenile salmonids in lakes migrate under, or otherwise utilize, piers, or if they avoid them and/ or traverse their perimeter.<sup>11</sup>

Behavior at each structure appears to depend on a variety of factors...although these are based primarily on **anecdotal observation.** (example of non-scientific hypotheses)<sup>12</sup>

Additionally, juvenile Chinook salmon may be attracted to boat ramps due to the docks in between the boat ramps **which may provide some overhead cover.**<sup>13</sup>

The substrate and slope are similar along this shoreline and it is unclear why Chinook salmon prefer the north part over the south part. One possibility is that the north sites are close to a **pier which may provide overhead cover** if needed.<sup>14</sup>

The result is that **resource managers are challenged** to recommend and implement Chinook salmon conservation strategies in Lake Washington with few references to unaltered lacustrine habitats, and an **incomplete understanding** of how alterations to the Lake Washington ecosystem affect juvenile Chinook salmon.<sup>15</sup>

Shoreline processes of Lake Washington have been changed by the regulated maximum one foot rise and fall of the lake. (Regulated at the Locks) Therefore **the removal of bank hardening structures may not be sufficient to create sandy beaches...**<sup>16</sup>

Studies of the relationship between shoreline armoring and predation on juvenile Chinook or Coho salmon in Lake Washington and Lake Sammamish **were not found.**<sup>17</sup>

**While no direct links were identified** between predation and bulkheads, an intuitive connection exists. (This is an example of subjective or hypothetical conclusions found throughout many of the studies)<sup>18</sup>

## SHORELINE VEGETATION, WOODY DEBRIS, AND BEACHES

Study Excerpts:

**Very few fish are found with cobble and larger substrates.**<sup>19</sup> (This is significant because in many shoreline areas containing bulkheads, the replacement beaches would have to consist of cobbles and larger materials because sand will wash away in the first storm. Extensive beach restoration which must protect property from erosion would require cobble and larger granular material.)

The pattern of woody debris use is **somewhat unclear.**<sup>20</sup>

Overall results indicated that there was **no difference** in the abundance of Chinook salmon between shoreline sections with small woody debris and sections without woody debris.<sup>21</sup>

## WATER QUALITY

None of the studies listed report on water quality, yet this is fundamental to the health of all aquatic life. The WRIA 8 document develops a hierarchy for tributary streams and lists Juanita Creek (doesn't mention Forbes Creek) as a Tier 3 subarea. The actions for this category are enhancing water quality and hydrologic integrity.<sup>22</sup> Thus for Kirkland, it would seem that the focus should be on storm water runoff and non-point pollution for tributary areas.

## UNANSWERED QUESTIONS

The excerpts shown above confirm the issues facing the science underlying the SMP update processes. In addition, there are other questions raised by these studies. A comprehensive list is found in the literature search conducted by The Watershed Company for the city of Bellevue (Reference 4). Page 49 of this report contains 13 unanswered questions which should be reviewed by all local government policy makers. And, to further the body of science, they should be answered.

## **GREEN SHORELINES**

There is another driver and that is a movement that has a push-pull relationship with the SMP update processes. It is called Green Shorelines. Other terms associated with this are salmon friendly, ecologically friendly, soft engineering, soft shorelines, alternative shoreline design, and living shorelines. It is a broad concept, applied to the entire shoreline of Lake Washington in a "one size fits all" way. As yet, it doesn't recognize the physical differences along the lake shoreline, exposure to storm driven waves and boat wakes, fish migratory patterns, extent of existing or potential fish habitat, or other unique characteristics.

Green Shorelines presumes that the restoration envisioned will achieve the goal of improved habitat and support salmon recovery. It also presumes that current scientific studies are sufficient to support and justify the goals for alternatives to shoreline hardening and justify the millions of dollars of expenditures to achieve them.

There is also an aesthetic component, typified by a number of comments lamenting the urbanization of Lake Washington beginning with the construction of the Ship Canal and the Locks and the lowering of the lake and the developments along the shoreline over the years.

A publication titled "Green Shorelines; Bulkhead alternatives for a healthier Lake Washington" has been prepared by the City of Seattle. It cites habitat restoration as a prime objective and provides resource information for bulkhead replacement.

Nowhere in all of this is any recognition of the DOE Guideline that it is not the intent of the SMP update process to restore the shoreline to predevelopment conditions.

## SHORELINE PROPERTY OWNERS' PERSPECTIVES

There is no group more interested and concerned about the health and ecology of Lake Washington than shoreline property owners. Furthermore there is no group that has more site specific knowledge about the lakeshore and the waters surrounding it than these property owners. For these reasons the criteria that support future actions must be well founded and credible.

Owners will support credible programs with these criteria:

- Attain measurable environmental benefits
- Feasible and practical
- Cost effective
- Fair and equitable
- Not impose hardships
- Not impose risks to property or homes
- Avoid unintended consequences
- Based on sound science that is reviewed and vetted

There is a widespread belief among shoreline property owners that the credibility of the SMP update processes and the Green Shoreline movement is hampered by the lack of several of these criteria, a most significant being vetted science.

## HOW TO RESPOND TO THESE DEFICIENCIES AND QUESTIONS?

Policy makers must consider the scientific basis for driving the SMP policies and resulting regulations and determine if it is sufficient or not. The DOE Guidance states:

Ultimately, local government elected officials must consider all of the information put before them, including opposing views and opinions, judge their credibility and decide what standards best achieve SMP guidelines requirements, **given local circumstances**.

If it is determined that the science is not adequate or applicable as a basis for a local government's SMP update process, several options are available.

The first is to join with the other local governments on Lake Washington to put in place a vetting process for the science that is being used to support the SMP update processes. This effort should be led by the Department of Ecology and coordinated with the other regulatory agencies so that the end result is endorsed by all.

Second, further studies should be conducted to answer the questions still remaining, the most significant ones being those contained in the Literature Search mentioned above. The vetting process would likely raise additional questions and concerns.

Third, studies should be conducted that are site specific to a local government's shoreline so that actions can be implemented that will insure real environmental benefit. A key issue is where do salmon migrate, to

what extent to they utilize a local government's shoreline? It is not enough to say, 'It seems Chinook are all over the lake'.<sup>23</sup> One example of a site specific study is the Movement and Habitat Use study that was conducted for Chinook coming from the Cedar River to the Ship Canal (Reference 5). This study follows the rationale of the site specific requirement being imposed on private shoreline property owners who must provide an engineering report to justify the retention of bulkheads to protect their property.

The fourth option is to waive the scientific deficiencies and base the SMP updates on policies and regulations which would be focused mostly on esthetics and a hopeful outcome for habit improvement.

**In any event, now is the time for policy makers to fully understand the extent and applicability of the body of scientific knowledge that exists and make a determination as to which pathway forward to follow.**

In the meantime, the real and serious issues of stormwater runoff and non-point pollution, true threats to fish habitat, continue.

Prepared by Richard Sandaas  
Shoreline Property Owner  
February 27, 2009

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<sup>1</sup> R. A. Tabor and R. M Piaskowski, 2002. Nearshore Habitat Use by Juvenile Chinook Salmon to Lentic Systems of the Lake Washington Basin. Annual Report, 2001. U.S. Fish and Wildlife Service, Lacey, WA.

<sup>2</sup> R. A. Tabor, J. A. Schuerer, H. A. Gearn, and E. P. Bixler. 2004. Nearshore Habitat Use by Juvenile Chinook Salmon to Lentic systems of the Lake Washington Basin. Annual Report, 2002. U.S. Fish and Wildlife Service, Lacey WA.

<sup>3</sup> Multiple Contributors. 2008. Synthesis of Salmon Research and Monitoring. Seattle Public Utilities, U.S. Army Corps of Engineers

<sup>4</sup> T. Kahler, M. Grassley, and David Beauchamp, 2000. A Summary of the Effects of Bulkheads, Piers, and Other Artificial Structures and Shorezone Development on ESA-listed Salmoids in Lakes. City of Bellevue. Page 9

<sup>5</sup> Mark T. Celedonia, R. A. Tabor, S. Sanders, D. W. Lantz, and I. Grettenberger, 2008. Movement and Habitat Use of Chinook Salmon Smolts and Two Predatory Fishes in Lake Washington and the Lake Washington ship Canal. U. S. Fish and Wildlife Service, Lacey, WA. Page 1

<sup>6</sup> Ibid, Page 3

<sup>7</sup> Multiple Contributors, Synthesis, Page 41

<sup>8</sup> Ibid, Page 45

<sup>9</sup> Chapter 4: Chinook Conservation Strategy for WRIA8, Page 32

<sup>10</sup> Kahler, A Summary of the Effects, Page 43

<sup>11</sup> Ibid, Page 44

<sup>12</sup> Celedonia, Movement and Habitat, Page 2

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- 13 Tabor, Nearshore Habitat, 2001, Page 49
- 14 Tabor, Nearshore Habitat, 2004, Page 29
- 15 Celedonia, Movement and Habitat, Page 1
- 16 Chapter 4: Chinook, Pages 32 and 33
- 17 Kahler, A Summary of the Effects, Page 36
- 18 Ibid, Page 36
- 19 Multiple Contributors, Synthesis, Page 40
- 20 Tabor, Nearshore Habitat, 2004, Page 52
- 21 Ibid, Page 12
- 22 Chapter 4: Chinook, Pages 25 and 26
- 23 R. A. Tabor, Comments, November 18, 2008, Chinook salmon usage of Kirkland shorelines

**Teresa Swan**

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**From:** kharrang@hotmail.com  
**Sent:** Saturday, February 28, 2009 4:05 PM  
**To:** Paul Stewart; Teresa Swan  
**Subject:** SMP/ follow up

Thanks for your time, and for putting on today's meeting. This email is to volunteer myself for Paul's follow up discussion group, and to give just a couple feedback items. I told these points to various people at the meeting, but I thought it might be helpful to jot them down so you have them in the process.

- It seems to me the concept of "no net loss" is difficult for people to understand (except at the most superficial level) because it lacks objective measurability. I've read the detailed description in the baseline booklet, but anything whose measurements are "low/medium/high" etc. is inherently subjective. If the goal was to improve air quality, for example, one would have to come up with a scorecard of objectively measurable metrics (e.g., carbon monoxide levels, ozone levels, etc.). The same reasoning applies to education, hence the current emphasis on testing. It seems to be a weakness of the plan that ecological functions are not defined exclusively in terms of objectively measurable indicators so that progress (or regression) can be measured over time.
- Related to setbacks, I think it was Stacy that made the point that existing setback regulations (15' etc.) have produced an actual median setback of 42.5 feet. New more stringent setbacks are needed, it was assumed, to keep the actual median setback from decreasing over time as people move projects closer to the lakefront. Afterwards, however, Stacy admitted that she had no data to support this assumption. This seems like a key omission, because otherwise people may argue that since the existing regulations have produced an actual median setback of 42.5 in the past, they will continue to do so in the future. In order to back up the key justification for setback increases -- which have very significant impacts on owners -- it needs to be shown that existing regulations have produced an actual median setback that has decreased significantly over time, and will continue to decrease in the future. Otherwise, I fear that people will view the setback increases as merely a mechanism by which to force lakefront modifications that the City desires at the owners' expense.
- The facilitator attempted to silence the comment from one of the attendees about the conflict of interest with The Watershed Company, but I think the speaker had a legitimate point that should be addressed. I too was confused why a representative of a company that potentially stands to gain business from projects required by regulation is involved in the formulation of regulations. Is this a normal practice for the City and Planning Commission? I mentioned this to the representative from Watershed afterwards.

Overall, while it was a good idea to hold the meeting, I remain disappointed that there doesn't appear to be any type of partnership between property owners and the City, and especially that property owners are not doing anything to give the City and Planning Commission constructive feedback in the process. These are failings on the part of us owners that need to be addressed, in my opinion.

KJH