

**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 40 people attended the meeting.

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 1) 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 2 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) so that people could request the paper. A copy of the paper is enclosed as Attachment 3. 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?

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

 **SHORELINE MASTER PROGRAM UPDATE** 

Shoreline Master Program (SMP) Workshop

February 28, 2009

 **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.

 **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

 **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

 **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

 **SHORELINE MASTER PROGRAM UPDATE** 

Some **Key Changes**:

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

 **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**.

 **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.

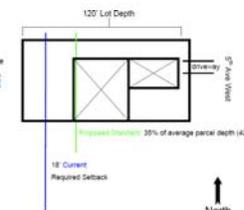
 **SHORELINE MASTER PROGRAM UPDATE** 

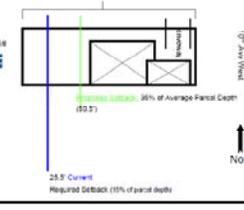
Existing development patterns:

- 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

 SHORELINE MASTER PROGRAM UPDATE 		
Shoreline Environment	Existing Shoreline Standards ¹	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

¹ Note: No Net Loss relates to existing functions, not existing standards.

 SHORELINE MASTER PROGRAM UPDATE 	
<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>

 SHORELINE MASTER PROGRAM UPDATE 	
<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>

 **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?

 **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

 **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.

 **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**

 **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).



 **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.**

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.



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.

SHORELINE MASTER PROGRAM UPDATE

Shoreline Armoring Alternatives in Kirkland



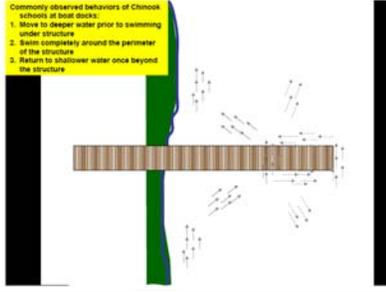
SHORELINE MASTER PROGRAM UPDATE

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



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

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



 **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.

 **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

 **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

 **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

 **SHORELINE MASTER PROGRAM UPDATE** 

ANY QUESTIONS?

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.¹ 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.^{2 3} 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.**⁴

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

“**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.”⁶

Not much information is known about the habitat use of Coho salmon and steelhead in Lake Washington.⁷

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

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.⁹

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.¹⁰

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

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)¹²

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.**¹³

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.¹⁴

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.¹⁵

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...**¹⁶

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

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)¹⁸

SHORELINE VEGETATION, WOODY DEBRIS, AND BEACHES

Study Excerpts:

Very few fish are found with cobble and larger substrates.¹⁹ (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.**²⁰

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.²¹

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.²² 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'.²³ 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

¹ 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.

² 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.

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

⁴ 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

⁵ 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

⁶ Ibid, Page 3

⁷ Multiple Contributors, Synthesis, Page 41

⁸ Ibid, Page 45

⁹ Chapter 4: Chinook Conservation Strategy for WRIA8, Page 32

¹⁰ Kahler, A Summary of the Effects, Page 43

¹¹ Ibid, Page 44

¹² 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

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
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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, except as noted in the provisions contained below.

SHORELINE DEVELOPMENT STANDARDS

83.180. 3

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	Natural	Urban Conservancy	Residential - L	Residential – M/H	Urban Mixed
Residential Uses						
Detached Dwelling Units and Accessory Dwelling Units						
Minimum Lot Size	n/a	12,500 sq. ft.	12,500 sq. ft.	12,500 sq. ft. except for the following: <ul style="list-style-type: none"> 5,000 sq. ft. if located on east side of Lake St S, at 7th Ave S; and 7,200 sq. ft. if subject to the Historic Preservation provisions of KMC 22.28.048 	3,600 sq. ft.	3,600 sq. ft.
Shoreline Setback	n/a		<u>Outside of shoreline area, if possible, otherwise 50'.</u>	<u>Thirty-five (35) % of the average parcel depth, except in no case is the shoreline</u>	<u>The greater of: a. 25' or b. 15% of the average</u>	<u>The greater of: a. 25' or b. 15% of the average parcel</u>

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	Natural	Urban Conservancy	Residential - L	Residential – M/H	Urban Mixed
				<u>setback permitted to be less than 30 feet or required to be greater than 60 feet.</u>	<u>parcel depth.</u>	<u>depth.</u>
Maximum Lot Coverage	n/a	50%	50% n/a	50%	60%	80% except for the following: <ul style="list-style-type: none"> In the CBD, 100% for properties that do not abut Lake Washington; otherwise 90%
Maximum Height of Structure ³	n/a	25' above ABE ¹	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.	35 0' above ABE
Other Residential Uses (Attached, Stacked, and Detached Dwelling Units; Assisted Living Facility; Convalescent Center or Nursing Home)						
Density ²	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 83.390 are met; otherwise 3,600 sq.	No minimum lot size in CBD; otherwise 1,800 sq. ft./unit

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

² 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
					ft./unit	
Shoreline Setback	n/a	n/a	n/a	n/a	<u>The greater of:</u> <u>a. 25' or</u> <u>b. 15% of the average parcel depth.</u>	<u>The greater of:</u> <u>a. 25' or</u> <u>b. 15% of the average parcel depth.</u> <u>In the PLA 15A zone located south of NE 52nd Street, mixed-use developments approved under a Master Plan shall comply with the Master Plan provisions.</u>
Maximum Lot Coverage	n/a	n/a	n/a	n/a	80%	80% except for the following: <ul style="list-style-type: none">In the CBD, 100% on properties that do not abut Lake Washington; otherwise 90%
Maximum Height of Structure ³	n/a	n/a	n/a	n/a	30' above ABE ⁴	30'-41' above ABE, except for the following: <ul style="list-style-type: none"><u>In the JBD, 28' above ABE if located on west side of 98th Avenue NE;</u>

³ 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).

⁴ 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
						<p>otherwise 39' above ABE⁷</p> <ul style="list-style-type: none"> • 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 2nd Ave S; 554' above the abutting right-of-way measured at the midpoint of the frontage of the subject property if located on the east side of Lake St S.⁷ • In the PLA 15A zone located south of NE 52nd Street, structure height may be increased to 40' above ABE.^{5,7} Otherwise, mixed-use developments approved under a Master Plan shall

⁵ See KZC 83.180.6.c.1)c).

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	Natural	Urban Conservancy	Residential - L	Residential – M/H	Urban Mixed
						comply with the Master Plan provisions. ⁶
Commercial Uses						
Minimum Lot Size	n/a	n/a	n/a	n/a	n/a	n/a
Shoreline Setback	n/a	n/a	<u>Water-dependent uses: 0 – 16', Water-related use: 25', Water-enjoyment use: 30', Other uses: Outside of shoreline area, if possible, otherwise 50'.</u>	n/a	<u>The greater of:</u> <u>a. 25' or</u> <u>b. 15% of the average parcel depth.</u>	<u>The greater of:</u> <u>a. 25' or</u> <u>b. 15% of the average parcel depth.</u> <u>In the PLA 15A zone located south of NE 52nd Street, mixed-use developments approved under a Master Plan shall comply with the Master Plan provisions.</u>
Maximum Lot Coverage	n/a	n/a	50%	n/a	80%	80% except for the following: <ul style="list-style-type: none">In the CBD, 100% on properties that do not abut Lake Washington; otherwise 90%
Maximum Height of Structure ³	n/a	n/a	If adjoining the Residential-L Shoreline	n/a	30' above ABE ⁴	<u>41' above ABE, except for the following:</u> <ul style="list-style-type: none"><u>In the CBD, 55' above the</u>

⁶ See KZC 83.180.6.c.1)d).

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	Natural	Urban Conservancy	Residential - L	Residential – M/H	Urban Mixed
			Environment, then 25' above ABE. Otherwise, 30' above ABE. ⁴			<p><u>abutting right-of-way measured at the midpoint of the frontage of the subject property if located on the east side of Lake St S.</u></p> <ul style="list-style-type: none"> <u>In the PLA 15A zone located south of NE 52nd Street, mixed-use developments approved under a Master Plan shall comply with the Master Plan provisions.</u> <p><u>—⁷30' above ABE, except for the following:</u></p> <ul style="list-style-type: none"> <u>•In the JBD, 28' above ABE if located on west side of 98th Avenue NE; otherwise 30' above ABE⁷</u> <u>•In the CBD, 28' above the abutting right-of-way measured at the midpoint of the frontage of the subject property if located</u>

⁷ See KZC 83.180.6.c.1)d).

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	Natural	Urban Conservancy	Residential - L	Residential - M/H	Urban Mixed
						<p>on west side of Lake St S and north of 2nd 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 2nd Ave S⁸; otherwise 55' above the abutting right of way⁷</p> <ul style="list-style-type: none"> In the PLA 15A zone located south of NE 52nd Street, structure height may be increased to 40' above ABE.^{5,7} Otherwise, mixed-use developments approved under a Master Plan shall comply with the Master Plan provisions.⁶
Industrial Uses						
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	<u>The greater of:</u>

⁸ 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
						<u>a. 25' or</u> <u>b. 15% of the average parcel depth.</u>
Maximum Lot Coverage	n/a	n/a	n/a	n/a	n/a	80% except for the following: <ul style="list-style-type: none"> In the CBD, 100% on properties that do not abut Lake Washington; otherwise 90%
Maximum Height of Structure ³	n/a	n/a	n/a	n/a	n/a	<u>41' above ABE, except for the following:</u> <ul style="list-style-type: none"> <u>In the CBD, 55' above the abutting right-of-way measured at the midpoint of the frontage of the subject property if located on the east side of Lake St S.</u> <u>In the PLA 15A zone located south of NE 52nd Street, mixed-use developments approved under a Master Plan shall comply with the Master Plan provisions.</u> <u>30' above ABE, except for the</u>

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	Natural	Urban Conservancy	Residential - L	Residential – M/H	Urban Mixed
						following: <ul style="list-style-type: none"> ◆ In the JBD, 28' above ABE if located on west side of 98th-Avenue NE; otherwise 39' above ABE ● 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 2nd-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 2nd-Ave S⁷; otherwise 55' above the abutting right-of-way⁷
Recreational Uses						
Minimum Lot Size	n/a	n/a	n/a	n/a	n/a	n/a
Shoreline Setback	n/a		Water-dependent uses: 0 – 16'. Water-related use:	Thirty-five (35) % of the average parcel depth,	The greater of: a. 25' or	The greater of: a. 25' or

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	Natural	Urban Conservancy	Residential - L	Residential - M/H	Urban Mixed
			<u>25', Water-enjoyment use: 30', Other uses: Outside of shoreline area, if possible, otherwise 50'.</u>	<u>except in no case is the shoreline setback permitted to be less than 30 feet or required to be greater than 60 feet.</u>	<u>b. 15% of the average parcel depth.</u>	<u>b. 15% of the average parcel depth.</u> <u>In the PLA 15A zone located south of NE 52nd Street, mixed-use developments approved under a Master Plan shall comply with the Master Plan provisions.</u>
Maximum Lot Coverage	n/a	10%	30%	30%	80%	80% except for the following: <ul style="list-style-type: none"> In the CBD, 100% on properties that do not abut Lake Washington; otherwise 90%
Maximum Height of Structure ³	n/a	25' above ABE	If adjoining the Residential-L Shoreline Environment, then 25' above ABE. Otherwise, 30' above ABE ⁴	25' above ABE	30' above ABE ⁴	<u>41' above ABE, except for the following:</u> <ul style="list-style-type: none"> <u>In the CBD, 55' above the abutting right-of-way measured at the midpoint of the frontage of the subject property if located on the east side of Lake St S.</u> <u>In the PLA 15A zone located south of NE 52nd Street, mixed-use developments approved</u>

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	Natural	Urban Conservancy	Residential - L	Residential – M/H	Urban Mixed
						<p><u>under a Master Plan shall comply with the Master Plan provisions.</u></p> <p>30' above ABE, except for the following:</p> <ul style="list-style-type: none"> ◆ In the JBD, 28' above ABE if located on west side of 98th Avenue NE; otherwise 39' above ABE • 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 2nd 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 2nd Ave S⁷; otherwise 55' above the abutting right of way⁷
Institutional Uses						

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	Natural	Urban Conservancy	Residential - L	Residential - M/H	Urban Mixed
Minimum Lot Size	n/a	n/a	n/a	n/a	n/a	n/a
Shoreline Setback	n/a	n/a	<u>Outside of shoreline area, if possible, otherwise 50'.</u>		<u>The greater of: a. 25' or b. 15% of the average parcel depth.</u>	<u>The greater of: a. 25' or b. 15% of the average parcel depth.</u>
Maximum Lot Coverage	n/a	n/a	50%	50%	80%	80% except for the following: <ul style="list-style-type: none"> In the CBD, 100% on properties that do not abut Lake Washington; otherwise 90%
Maximum height of structure ³	n/a	n/a	If adjoining the Residential-L Shoreline Environment, then 25' above ABE. Otherwise, 30' above ABE ⁴	25' above ABE	30' above ABE ⁴	<u>41' above ABE, except for the following:</u> <ul style="list-style-type: none"> <u>In the CBD, 55' above the abutting right-of-way measured at the midpoint of the frontage of the subject property if located on the east side of Lake St S.</u> 30' above ABE, except for the following: <ul style="list-style-type: none"> <u>In the JBD, 28' above ABE if located on west side of</u>

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	Natural	Urban Conservancy	Residential - L	Residential – M/H	Urban Mixed
						<p>98th Avenue NE; otherwise 39' above ABE⁷</p> <ul style="list-style-type: none"> 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 2nd 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 2nd Ave S⁷; otherwise 55' above the abutting right-of-way⁷
Transportation						
Minimum Lot Size	n/a	n/a	n/a	n/a	n/a	n/a
Shoreline Setback	n/a		<u>Outside of shoreline area, if possible, otherwise 50'.</u>	<u>Thirty-five (35) % of the average parcel depth, except in no case is the shoreline setback permitted</u>	<u>The greater of:</u> a. 25' or b. 15% of the average parcel depth.	<u>The greater of:</u> a. 25' or b. 15% of the average parcel depth.

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT						
	Aquatic	Natural	Urban Conservancy	Residential - L	Residential - M/H	Urban Mixed	
				<u>to be less than 30 feet or required to be greater than 60 feet.</u>			
Maximum Lot Coverage	n/a	n/a	n/a	n/a	n/a	n/a	
Maximum Height of Structure ³	n/a	n/a	n/a	n/a	n/a	n/a	
Utilities							
Minimum Lot Size	n/a	n/a	n/a	n/a	n/a	n/a	
Shoreline Setback	n/a		<u>Outside of shoreline area, if possible, otherwise 50'.</u>	<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>	<u>The greater of: a. 25' or b. 15% of the average parcel depth.</u>	<u>The greater of: a. 25' or b. 15% of the average parcel depth.</u>	
Maximum Lot Coverage	n/a	5%	30%	50%	80%	80% except for the following: <ul style="list-style-type: none"> In the CBD, 100% on properties that do not abut Lake Washington; otherwise 90% 	

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	Natural	Urban Conservancy	Residential - L	Residential - M/H	Urban Mixed
Maximum Height of Structure ³	n/a	25' above ABE	If adjoining the Residential-L Shoreline Environment, then 25' above ABE. Otherwise, 30' above ABE ⁴	25' above ABE	30' above ABE ⁴	<p><u>41' above ABE, except for the following:</u></p> <ul style="list-style-type: none"> <u>In the CBD, 55' above the abutting right-of-way measured at the midpoint of the frontage of the subject property if located on the east side of Lake St S.</u> <u>In the PLA 15A zone located south of NE 52nd Street, mixed-use developments approved under a Master Plan shall comply with the Master Plan provisions.</u> <p><u>30' above ABE, except for the following:</u></p> <ul style="list-style-type: none"> <u>In the JBD, 28' above ABE if located on west side of 98th Avenue NE; otherwise 39' above ABE⁷</u> <u>In the CBD, 28' above the abutting right-of-way measured at the midpoint</u>

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	Natural	Urban Conservancy	Residential - L	Residential – M/H	Urban Mixed
						<p>of the frontage of the subject property if located on west side of Lake St S and north of 2nd 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 2nd Ave S⁷; otherwise 55' above the abutting right-of-way⁷</p>

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 83.390.
 - 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 83.380. Light fixtures approved under this subsection shall comply with the provisions contained in KZC 83.440.
- 3) Those portions of water-dependent development that require improvements adjacent to the water's edge, such as fueling stations for retail establishments providing gas sales, haul-out areas for retail establishments providing boat and motor repair and service, boat ramps for boat launches or other similar activities.
 - 4) Public access facilities or other similar public water-enjoyment recreational uses.
 - 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; provided the following standards are met:
 - a) The structure shall be designed so that it does not interfere with the shoreline vegetation required to be installed under the provisions of KZC 83.370; and
 - b) These structures shall not be installed to provide the function of a shore erosion control structure unless approved under the provisions of KZC 83.300.
 - 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.

~~11~~12) Bridges and other essential public facilities that must cross shorelines.

~~12~~13) Parking as authorized by the Planning Official under the provisions of KZC 83.420.3.

~~13~~14) Shoreline stabilization measures approved under the provisions of KZC 83.300.

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 under either of the following, at the discretion of the applicant, as:

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

~~a~~b) A percentage of the area of the subject ~~located~~property 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. The calculation of ABE shall be based on all wall segments of the structure, whether or not the segments are located within the shoreline jurisdiction.

~~3~~4) In the CBD, maximum building height shall be measured from the midpoint of the abutting right-of-way. 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~~5) 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 2nd 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 83.380; 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 52nd 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) j) 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 83.260.
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 83.420.
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. General
 - a. Motorized Boats -

- 1) Power-operated boats and jet skis are prohibited within restricted areas designated in Juanita and Yarrow Bays, as delineated by buoys and signage.
 - 2) 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.
- b. Private recreational floats/swim platforms are not permitted.
2. Marina – See standards contained in KZC Section 83.290.
 3. Piers – See standards contained in KZC Section 83.280.
 4. Boatlifts – See standards contained in KZC Section 83.280.
 5. Canopies – See standards contained in KZC Section 83.280.
 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 83.290.
 - 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 83.280.
 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 83.290.3.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

83.240 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

83.250 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.

83.260 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.

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

1. General –

- a. The purpose of this section is to provide standards and guidelines for the location and design of piers, docks, boatlifts and moorage piles.
- b. These standards are intended to apply to private facilities providing boat moorage and other recreational use.
- c. Piers, Docks, Floats and Boatlifts may only be developed and used accessory to dwelling units on waterfront lots or upland lots with waterfront access rights. Use of these structures is limited to the residents and guests of the waterfront lots to which the moorage is accessory. Moorage space may not be leased, rented, or sold unless otherwise approved as a Marina under the provisions of KZC 83.290.
- d. The applicant for any new private pier or dock must demonstrate that a shared or joint-use pier is not feasible.
 - 1) On lots abutting a lot or lots with no existing moorage facility, joint-use piers shall be required, unless the applicant provides written verification from the owner(s) of the adjacent lots that they will not consent to a shared use agreement.
 - 2) On waterfront lots subdivided to create additional waterfront lots or upland lots with waterfront access rights, joint-use piers shall be required.
 - 3) New residential development of two or more dwelling units on waterfront lots must provide a joint-use or community dock facility.

2. Location Standards – Piers, docks, boatlifts and moorage piles shall be designed and located according to the following criteria:
 - a. General
 - 1) Piers and docks shall be sited and designed to avoid adversely impacting shoreline ecological functions or processes, and shall mitigate for any unavoidable impacts to ecological functions.
 - 2) Piers and docks shall be spaced and oriented in a manner that minimizes hazards and obstructions to public navigation rights and corollary rights thereto such as, but not limited to, fishing, swimming and pleasure boating.
 - 3) If a 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 and submit proof of authorization with submittal of a Building Permit for this use.
 - b. Setbacks
 - 1) All piers, docks, boatlifts and moorage piles shall comply with the following setback standards:
 - a) No pier, dock, or moorage pile may be within 10 feet of a side property line; and
 - b) No pier, dock, or moorage pile may be within 25 feet of another moorage structure not on the subject property, except that this requirement shall not apply if the adjoining pier does not comply with required side setback requirements in subsection a) above; and
 - c) Piers, docks, or moorage piles 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.
 - 2) In addition to the standards contained in subsection 1) above, if the subject property provides moorage for not more than two boats, the structure must be separated from a public park by a minimum of 25 feet, except that this standard shall not apply within the Urban Mixed shoreline environment.
 - 3) In addition to the standards contained in subsection 1) above, if the subject property provides moorage for more than two boats, the following setback standards apply:
 - i) No pier, dock, or moorage pile on private property may be within 100' feet of a public park;
 - ii) Except for properties located in the Urban Mixed shoreline environment, no pier, dock, or moorage pile 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.
 - iii) Except for properties located in the Urban Mixed shoreline environment, no pier, dock, or moorage pile 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;
 - b) Joint-use structures may abut property lines provided the adjacent property owners have mutually agreed to the structure location. To insure that a pier is shared, each property owner must sign a statement in a form acceptable to the City Attorney,

stating that the pier is used by the other property. The applicant must file this statement with the King County Bureau of Elections and Records to run with the properties.

3. Design Standards –

a. General –

- 1) Piers and docks shall be restricted to the minimum size necessary to provide safe and reasonable moorage for the boats to be moored. The length, width and height of piers and docks and other developments regulated by this section shall be no greater than that required for safety and reasonable use.
 - 2) Piers and docks and other developments regulated by this section shall be constructed of materials that will not adversely affect water quality or aquatic plants and animals in the long term.
 - 3) Proposed piers or docks which do not comply with the dimensional standards contained in this chapter may only be approved if they obtain a shoreline variance under the provisions of KZC Chapter 43.
 - 4) All piers and docks and other developments regulated by this section shall be constructed and maintained in a safe and sound condition. Abandoned or unsafe structures shall be removed or repaired promptly by the owner.
 - 5) Exterior lighting mounted on piers and docks and other developments regulated by this section located shall be at ground or dock level, and be directed away from adjacent properties and the water.
 - 6) Temporary moorages shall be permitted for vessels used in the construction of shoreline facilities. The design and construction of temporary moorages shall be such that upon termination of the project, the aquatic habitat in the affected area can be returned to its original (pre-construction) condition within one (1) year at no cost to the environment or the public.
 - 7) Covered moorage, boathouses, or other walled covered moorage are prohibited.
 - 8) No skirting is allowed on any structure.
 - 9) If a pier or dock is provided with a safety railing, such railing shall not exceed 36 inches in height and shall be an open framework.
 - 10) Piers and docks must display the street address of the subject property. The address must be oriented to the lake with letters and numbers at least four inches high.
 - 11) Piers and docks shall be marked with reflectors, or otherwise identified to prevent unnecessarily hazardous conditions for water surface users during the day or night. Exterior finish of all structures shall be generally non-reflective.
 - 12) Aircraft moorage is not permitted, except as associated with an approved float plane landing and mooring facility.
 - 13) Must provide at least one covered and secured waste receptacle.
 - 14) 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. New Piers or Docks – Piers or docks may be permitted, subject to the following regulations:
- a. Area. Surface coverage of new private piers or docks, including all floats, ramps, ells and fingers, shall be limited to the following:

- 1) Four hundred eighty (480) square feet for a single property owner;
 - 2) Seven hundred (700) square feet for a joint-use facility utilized by two residential property owners; or
 - 3) One thousand (1,000) square feet for a joint-use facility utilized by three or more residential property owners.
 - 4) Where a new pier cannot reasonably be constructed under the area limitation of 1-3) above such that a moorage depth of 10 feet measured at ordinary high water can be reached, an additional four (4) square feet of area may be added for each additional foot of pier length needed to reach 10 feet of water depth.
- b. Length and Width. The length and width of new private piers and docks shall be limited to the following:
- 1) The length of new private piers or docks shall be limited by the maximum square footage allowed in KZC 83.280.4.c. In addition, the maximum length of a pier, including all ells, fingers, and floats, is one-hundred fifty (150) feet.
 - 2) Only piers and ramps can be located within 30 feet waterward of the ordinary high water mark.
 - 3) Piers that extend further waterward than existing adjacent piers must demonstrate that they will not have an adverse impact on navigation.
 - 4) The dimensions of new private piers or docks, shall be limited to the following:
 - a) The maximum width of a pier is four (4) feet.
 - b) The maximum width of a pier ramp is three (3) feet.
 - c) The maximum width of ells and floats is six (6) feet. The maximum length of ells is twenty-six (26) feet.
 - d) The maximum width of fingers is two (2) feet. The maximum length of fingers is twenty (20) feet.
 - e) The maximum width of floats is six (6) feet. The maximum length of floats is twenty (20) feet.
- c. Height.
- 1) Except for floats, the bottom of all structures must be at least 1.5 feet above the ordinary high water mark.
 - 2) Diving boards and similar features may not be more than three (3) feet above the deck.
- d. Water Depth.
- 1) Ells must be in water with depths of 9 feet or greater as measured at the ordinary high water mark.
 - 2) Floats must be in water with depths of 10 feet or greater as measured at the ordinary high water mark.
- e. Decking. All new piers, including walkways, ells, and fingers, must be fully grated. Decking shall allow light to pass through at least 60 percent of the surface area. If float tubs preclude the beneficial use of fully grated decking material, then a minimum of 2 feet of grating down the center of the entire float shall be provided.
- f. Piles. The first set of in-water piling located nearest to shore shall be steel, 4 inches in diameter and at least 18 feet from the OHWM. Pilings located beyond the first set shall also be steel or untreated wood and spaced at least 18 feet apart and shall not be greater than 12

- inches in diameter. Piles shall not be treated with pentachlorophenol, creosote, CCA or comparably toxic compounds.
- g. Mitigation. All proposals involving new private piers or docks are subject to the following mitigation requirements:
- 1) Any existing in-water and overwater structures associated with the pier or use for moorage or other recreational use that are located within 30 feet of the ordinary high water mark shall be removed.
 - 2) Emergent vegetation shall be planted waterward of the ordinary high water mark, if the site is appropriate for such plantings.
 - 3) Plant native riparian 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. Joint-use piers will require a riparian zone along all properties sharing the pier. Mitigation plantings shall be subject to the following requirements:
 - a) Restoration of native vegetation shall consist of a mixture of trees, shrubs and groundcover and be designed to improve habitat functions. At least three (3) trees per 100 linear feet of shoreline must be included in the plan. Plant materials must be native and selected from the Kirkland Native Plant List. Plant density and spacing shall be appropriate for the site and commensurate with spacing recommended for each individual species proposed. An alternative planting plan or mitigation measure in lieu of meeting these requirements may be allowed if approved by other state and federal agencies. In addition, 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.
 - b) 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 vegetation in a selected area, provided that the minimum landscape standard is met.
 - 4) In addition to a native planting plan, a five-year vegetation maintenance and monitoring plan is also required. The monitoring plan shall include the following performance standards:
 - a) Preparation of as-built drawings after installation of the mitigation plantings;
 - b) Annual monitoring reports for five (5) years, that include written and photographic documentation on tree and shrub mortality subject to the following success criteria:
 1. One-hundred (100) percent survival of all planted native trees and shrubs during the first two years after planting; and
 2. One-hundred (100) percent survival of trees and eighty (80) percent survival of remaining native plants in years three through five.
- Copies of reports that are submitted to state or federal agencies in compliance with

permit approvals may be submitted in lieu of a separate report to the City.

- h. Woody debris existing on-site or contributed to the site as part of the mitigation efforts shall not be removed.
5. Replacement of Existing Private Pier or Dock – Proposals involving replacement of the entire existing private pier or dock, including piles, are considered a new moorage facility and must meet the dimensional and material standards for new private piers as described in KZC 83.280.5. Additionally, projects involving replacement of more than 50 percent of the pier-support piles and either decking or decking substructure (e.g. stringers) over a 5-year period must meet the dimensional and materials standards for new private piers as described in KZC 83.280.4.
 - a. Administrative approval of alternative design. The City may approve pier replacement proposals that deviate from the dimensional and materials standards of KZC 83.280.5 if the applicant can demonstrate that the proposal has been approved by the U.S. Army Corps of Engineers, the Washington Department of Ecology, and the Washington Department of Fish and Wildlife. In no case, however, may the dimensions of a replacement pier proposed through the alternative design process exceed the following maximums:
 - 1) The maximum width of a pier is six (6) feet.
 - 2) The maximum width of a pier ramp is four (4) feet.
 - 3) The maximum width of ells and floats is eight (8) feet. The maximum length of ells is twenty-six (26) feet.
 - 4) The maximum width of fingers is three (3) feet. The maximum length of fingers is twenty-six (26) feet.
 - 5) The maximum width of floats is eight (8) feet. The maximum length of floats is twenty-six (26) feet.
 - 6) The maximum length of a replacement pier, including all ells, fingers, and floats, is one-hundred fifty (150) feet.
 - 7) No replacement pier may be larger in size (square footage) than the existing pier.
6. Additions to Private Pier or Dock – Proposals involving the modification and/or enlargement of existing private piers or docks must comply with the following measures:
 - a. The applicant must demonstrate that there is a need for the enlargement of an existing pier or dock. The need for enlargement must be based upon safety concerns or inadequate depth of water.
 - b. Enlarged portions of piers must comply with the dimensional, materials and mitigation standards for new private piers as described in KZC 83.280.5.
 - c. To mitigate for impacts associated with surface coverage, all pier enlargement projects must convert to grated decking an area of existing nearshore decking equivalent in size to the additional surface coverage.
7. Repair of Existing Private Pier or Dock – Repair proposals which replace only decking or decking substructure or less than 50 percent of the existing pier-support piles must comply with the following:
 - a. Replacement piles must be sized as described under KZC 83.280.5.h and must achieve the minimum 18-foot spacing to the extent allowed by site-specific engineering or design considerations.
 - b. Repair proposals which replace 50 percent or more of the decking or decking substructure over a five (5)-year period must replace any solid decking surface located within the nearshore 30 feet of the pier with a grated surface material.

- c. Other repairs to existing legally established moorage facilities where the nature of the repair is not described in the above subsections shall be considered minor repairs and are permitted, consistent with all other applicable codes and regulations. If the cumulative repair proposed over a five (5)-year period exceeds thresholds established in KZC 83.280.6, above, the current repair proposal shall be reviewed under those provisions.
8. Boatlifts and Boatlift Canopies – Boatlifts and boatlift canopies may be permitted as an accessory to private piers and docks, subject to the following regulations:
 - a. Boatlifts.
 - 1) To the maximum extent practicable, all lifts shall be oriented in a north-south direction to minimize shading impacts.
 - 2) All lifts are to be placed as far waterward as feasible and safe, within the limits of the dimensional standards for private piers established in KZC 83.280.4.d.
 - 3) A maximum of one free-standing or deck-mounted boatlift is allowed per dwelling unit.
 - 4) In addition to the lifts permitted in subsection 3 above, a maximum of two jetski lifts or one fully grated platform lift are also permitted per dwelling unit.
 - 5) Up to two (2) cubic yards of fill are permitted to anchor a lift. Fill is subject to the following requirements:
 - a) Fill can only be used if the substrate prevents the use of anchoring devices which can be embedded into the substrate.
 - b) The fill must be clean.
 - c) The fill must consist of rock or pre-cast concrete blocks.
 - d) The fill must only be used to anchor the boatlift.
 - e) The minimum amount of fill must be utilized to anchor the boatlift.
 - b. Boatlift canopies.
 - 1) Only one canopy is permitted per single or joint-use overwater structure.
 - 2) Boatlift canopies must be made of translucent fabric materials.
 - 3) Boatlift canopies must not be constructed of permanent structural material. The bottom of a boatlift canopy shall be elevated above the boatlift to the maximum extent practicable, the lowest edge of the canopy must be a least four (4) feet above the ordinary high water mark, and the top of the canopy must not extend more than four (4) feet above an adjacent pier.
 9. Moorage Piles – Moorage piles may be permitted as an accessory to private piers and docks, subject to the following regulations:
 - a. A maximum of two (2) moorage piles are allowed per private pier or dock, including existing moorage piles.
 - b. Joint-use structures can have up to four (4) moorage piles, including existing moorage piles.
 - c. All piles shall be located within twelve (12) feet of a pier or dock.
 - d. In no case may a pile be placed within 30 feet of the ordinary high water mark or any farther waterward than the end of the pier.

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, t~~he following setback standards from public parks apply to marinas:
 - a) No moorage structure on private property may be within 100' feet of a public park; or
 - b) Except for properties located in the Urban Mixed shoreline environment, nNo 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; ~~and~~
 - 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 uses, 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)2) 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 four (4) feet; and
 - ii) Primary walkways and floats may be no wider than six (6) feet; and
 - iii) Ells may be no wider than eight (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) 1) Except for floats, the bottom of all structures must be at least 1.5 feet above the ordinary high water mark. 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 enlarged 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.
 - ~~b.c. 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.~~
 - ~~e.d. 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. In addition, 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.

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 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 83.390 for public access.

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

- ~~g.i.k.~~ Shoreline stabilization measures shall not extend waterward more than the minimum amount necessary to achieve effective stabilization.
- ~~h.j.l.~~ 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.
- ~~k.m.~~ 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.
- ~~i.l.m.n.~~ 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) 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) Does not result in erosion of the shoreline or undermine stability of neighboring properties.~~
 - ~~f) Does not result in the compaction of existing soils in a manner that significantly decreases the ability of the soil to absorb rainfall.~~
 - ~~g) 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.

