



SHORELINE MASTER PROGRAM UPDATE



Shoreline Master Program Regulations

November 11, 2008



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Agenda

- Discuss topics & provide staff with policy direction on key issues
 - Shoreline Stabilization
 - Cumulative Impacts and No Net Loss
 - Shoreline Setbacks



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Why Do We Build Bulkheads?

- Shoreline protection
- Decrease erosion
- Reduce wave impacts
- Increase or maintain size of lawn areas





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What is the concern about bulkheads?

Bulkheads impact a number of shoreline functions and processes:

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

“Wave bashing”



Loss of complex habitat



Bass Habitat





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Juvenile Chinook Habitat Needs



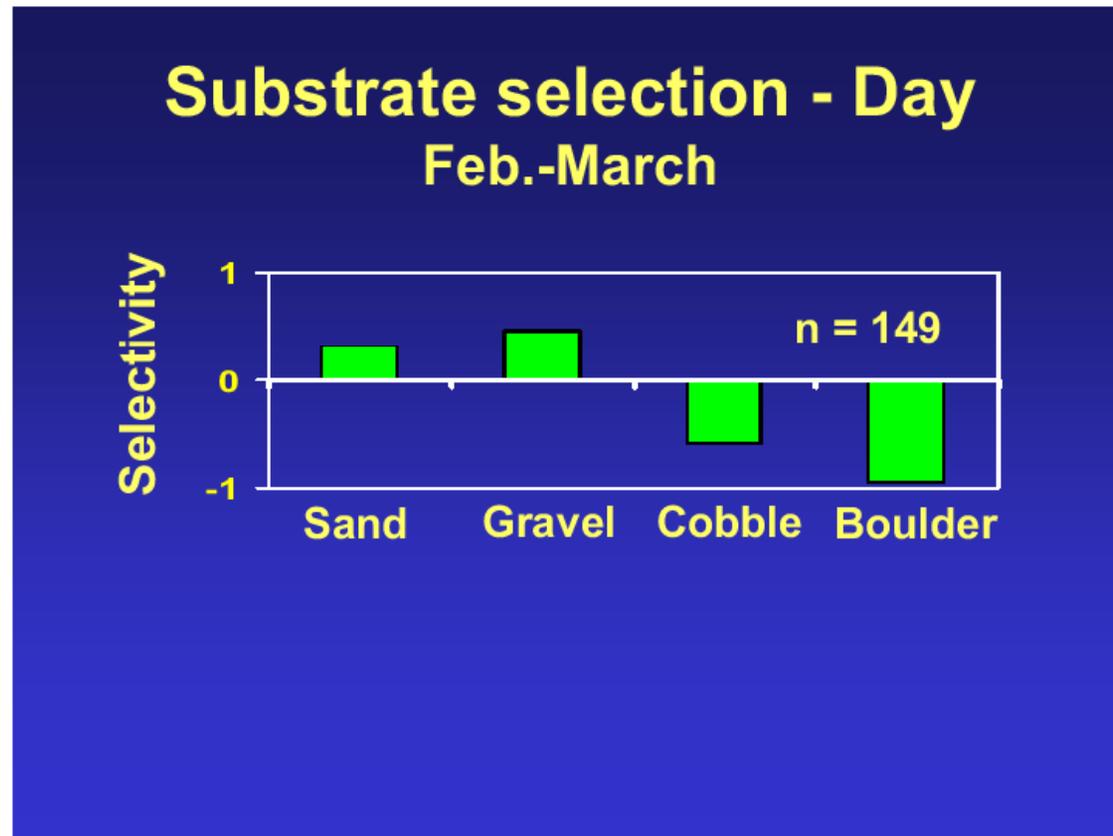
- Lake Washington provides migratory and rearing habitat
- Shoreline areas with shallow depths (<1m)
- Gentle Slope
- Fine substrates
- Overhanging vegetation/small woody debris
- Small creeks: mouths and shallow, low-gradient upstream portions



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Juvenile Chinook preference for sandy or gravel substrate



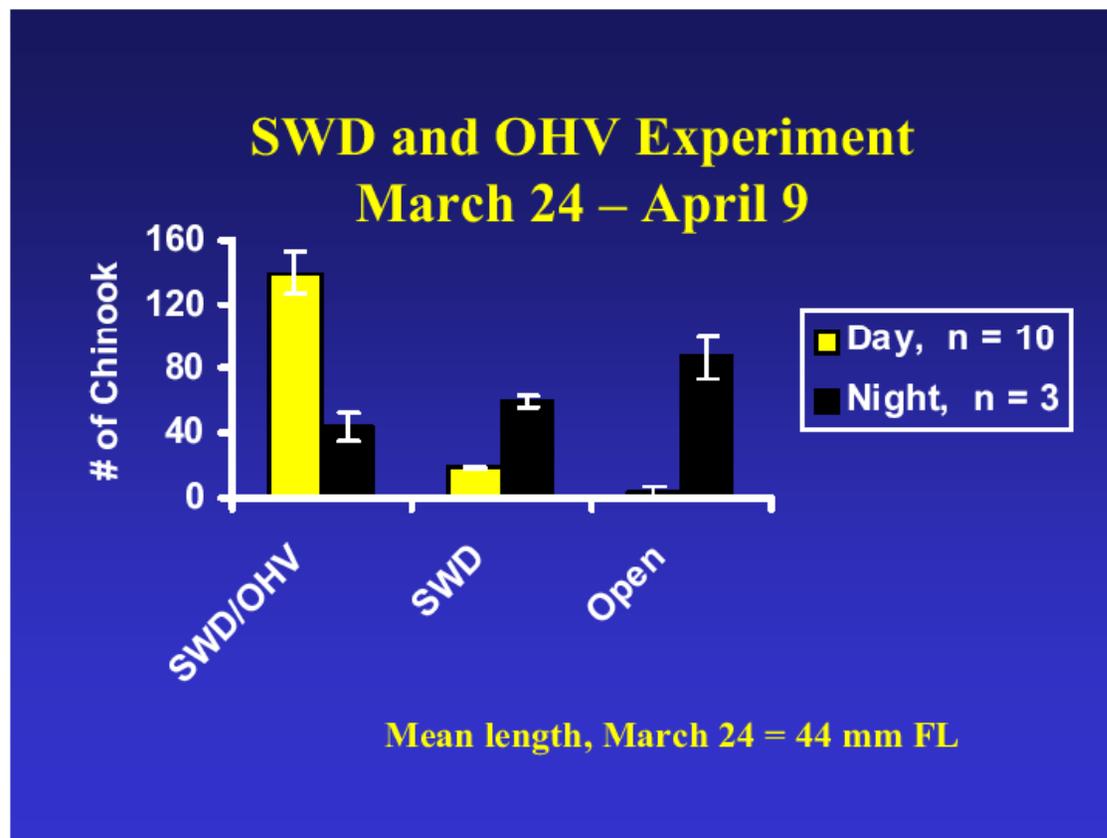
Source: US Fish and Wildlife Service



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Chinook juvenile preference for woody debris and overhanging vegetation



Source: US Fish and Wildlife Service



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Preferred Habitat Conditions



Open sandy beach –
Day and night habitat

SWD and OHV –
Day habitat



Source: US Fish and Wildlife Service



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How Much of Kirkland has Bulkheads?

Inventory shows:

- 88% hardened shoreline in Residential – L
- 89% hardened shoreline in Residential – M/H
- 80% hardened shoreline in Urban Mixed
- 60% hardened shoreline in Urban Conservancy
- 0% hardened in Natural



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Innovative design alternatives

A wide range of alternatives to bulkheads may be possible, depending on site circumstances, including:

- Installing full beaches
- Creating beach coves
- Setting back bulkheads
- Planting shoreline buffers
- Slope bioengineering
- Installing logs for reinforcement

These alternatives can provide benefits to:

- Fish Habitat
- Wildlife Habitat
- Human Habitat



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Design Objectives

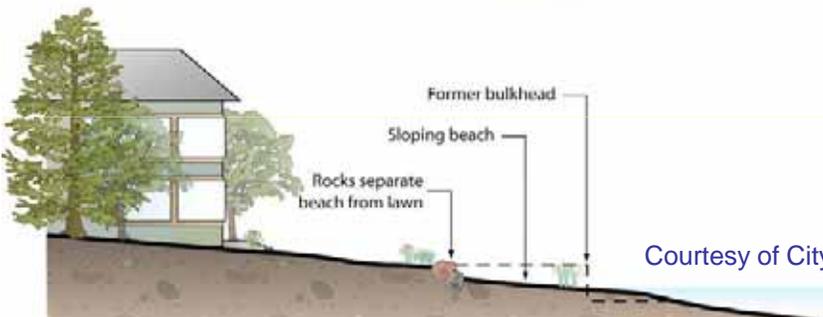
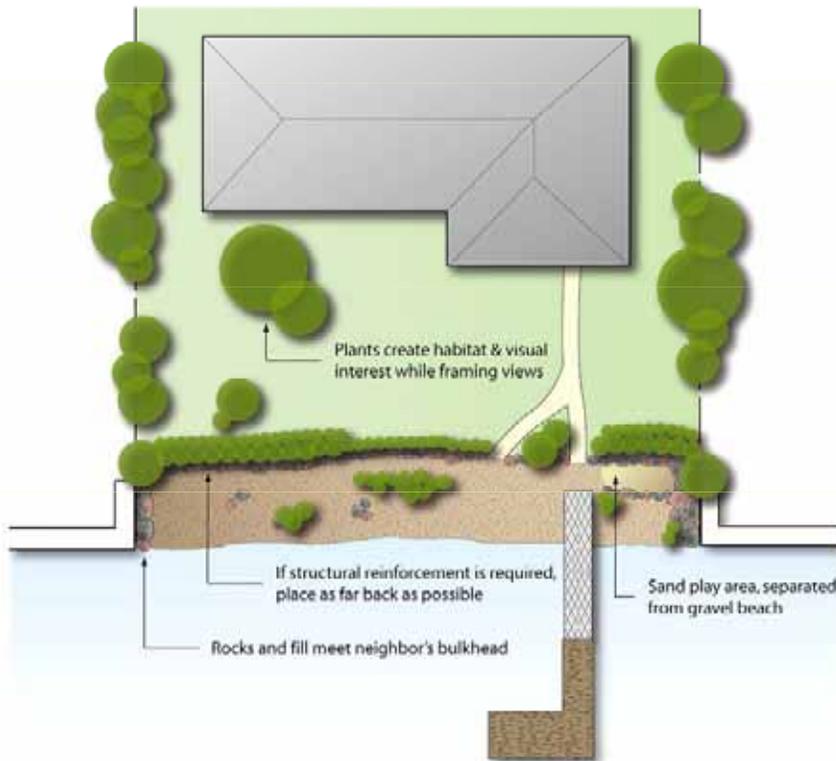
- Ensure protection of property from erosion
- Improve shoreline ecological functions
 - Pull bulkheads back from OHWM
 - Decrease substrate gradient
 - Reduce erosion
 - Retain and plant native vegetation
- Improve water access
- Improve aesthetics
- Facilitate smooth permitting



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Full beach



Courtesy of City of Seattle

- Full Beach

- Existing bulkhead removed
- Lay back the slope to a stable angle
- Add appropriate gravel, plants, and other soft shoreline structural elements to attenuate waves.

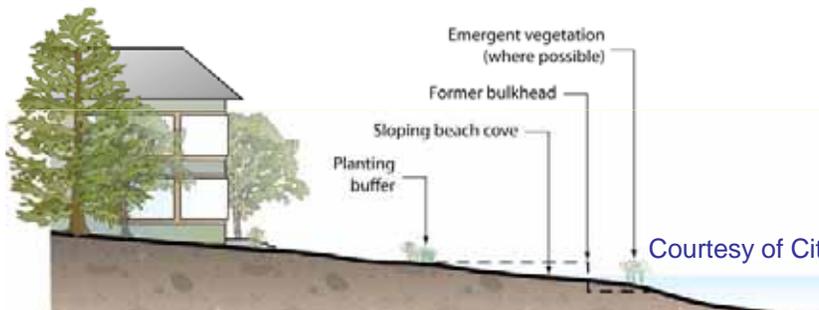
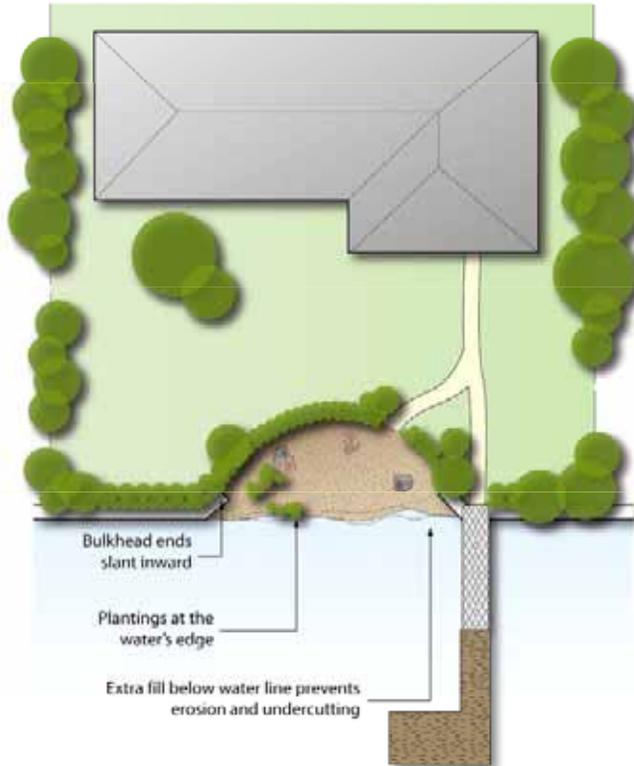
- Most appropriate for sites with larger setbacks, shallow nearshore slope, shallow yard slope, and low to medium wave energy



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Beach cove



Courtesy of City of Seattle

- Beach Cove

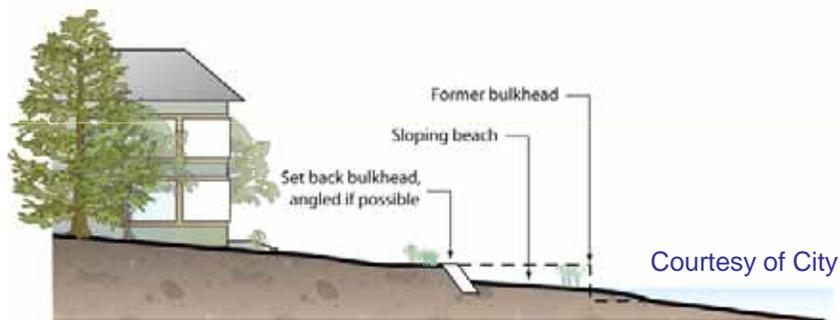
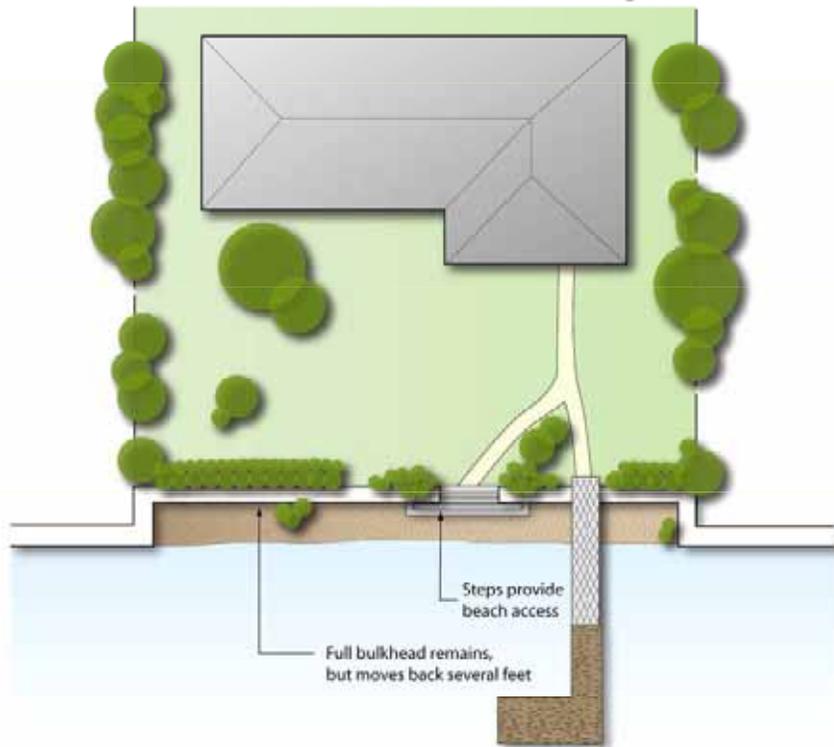
- Beach along a portion of a property's waterfront, flanked on both sides with some hard structural elements
- Can be used in a broad range of sites
- Beach cove constructed in Market Neighborhood in ~2000



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Setting Back Bulkheads



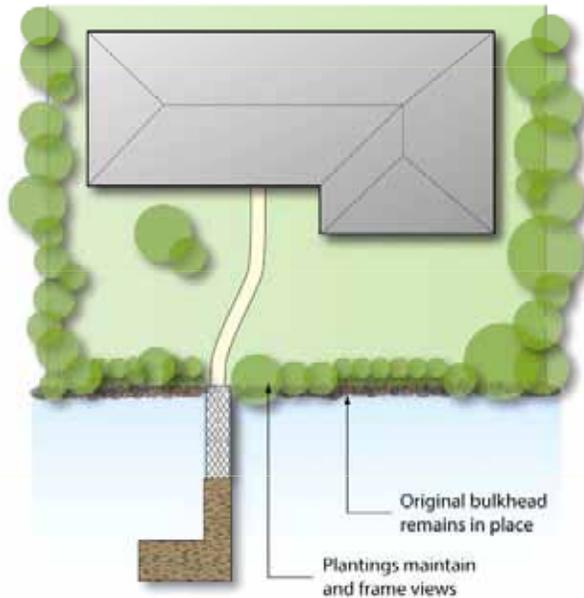
- Set back bulkhead from ordinary high water mark.
 - Most appropriate for sites where structures are located close to water.
 - Provides natural beach area for recreational use and increased habitat. Also provides protection from high waves.



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Vegetated buffer



Courtesy of City of Seattle

- Vegetated buffer
 - Significant for habitat and can be designed for visual interest and to frame views
 - Can be used in sites where structure is close to bulkhead or can be combined with other alternatives



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Benefits to Fish and Wildlife

- Improved refuge from predators
- Improved food resources
- Reduced wave energy
- Improved migration corridor

Benefits to Property Owners

- Maintain shoreline stability
- Improved water access
- Natural aesthetic that can enhance views
- Easier permitting process



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Restoration project in PAA



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Restoration project in PAA



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Restoration project in Bellevue



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Restoration project in Martha Washington Park in Seattle



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Shoreline Stabilization

- Ecology provides clear standards for new shoreline stabilization
 - “No net loss”, plus additional specific requirements
 - SMPs should allow structural shoreline modifications ***only where necessary*** to protect allowed primary structure. WAC 173-26-231(2)
 - Existing bulkhead may be replaced if there is a ***demonstrated need*** to protect principal structures. WAC 173-26-231(3)(a)(iii)(C)
 - How is necessity determined?
 - Requires conclusive evidence, documented by geotech analysis, that structure is in danger from shoreline erosion caused by natural processes (not upland erosion). WAC 173-26-231(3)(a)(iii).
 - “Danger” = damage is likely within 3 years.
 - If necessary, soft approaches (e.g. rely on less rigid materials, such as a mix of gravels, cobbles, boulders, logs and native vegetation) must be used unless demonstrated to be not sufficient. WAC 173-26-231(3)(a)(iii)(E)



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Shoreline Stabilization Action	Submittal Information	Impact Minimization Techniques	Mitigation
New or Enlarged Hard Shoreline Stabilization Structure	Requires Geotechnical Report, and demonstration that non-structural measures are not feasible or not sufficient. (WAC 173-26-231(3)(a)(iii)(B) and WAC 173-26-231(3)(a)(iii)(D))	Required. (WAC 173-26-231(3)(a)(iii)(E))	Required. (WAC 173-26-201(2)(e)).
Replacement Hard Shoreline Stabilization Structure	Requires evidence of a demonstrated need to protect principle uses or structures from erosion caused by currents, tidal action, or waves (WAC 173-26-231(3)(a)(iii)(E))	Required. (WAC 173-26-231(3)(a)(iii)(E))	Not required.
Repair of Shoreline Stabilization Structure	Depends	Required.	Not required.



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Review Process for New Bulkheads

- WAC 173-267-040 allows exemption for construction of a normal protective bulkhead for the sole purpose of protecting an existing single family residence
- City could establish a CUP or SDP process for new bulkheads in the residential and urban mixed environments

Question: What process should be established for new bulkhead?



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Mitigation for new bulkheads

- Mitigation is required under the state provisions in order to meet no net loss
- Mitigation requirements could be prescriptive (e.g. require 10-foot wide landscape strip) or performance based to allow for more flexibility

Question: What type of standards should apply for required mitigation for new bulkheads?



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Submittal Requirements:

- City can adopt specific standards that would establish when a geotech requirement can be waived for certain replacement structures

Question: Should additional criteria be established to waive geotechnical reports for replacement structures?



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Replacement and Repair

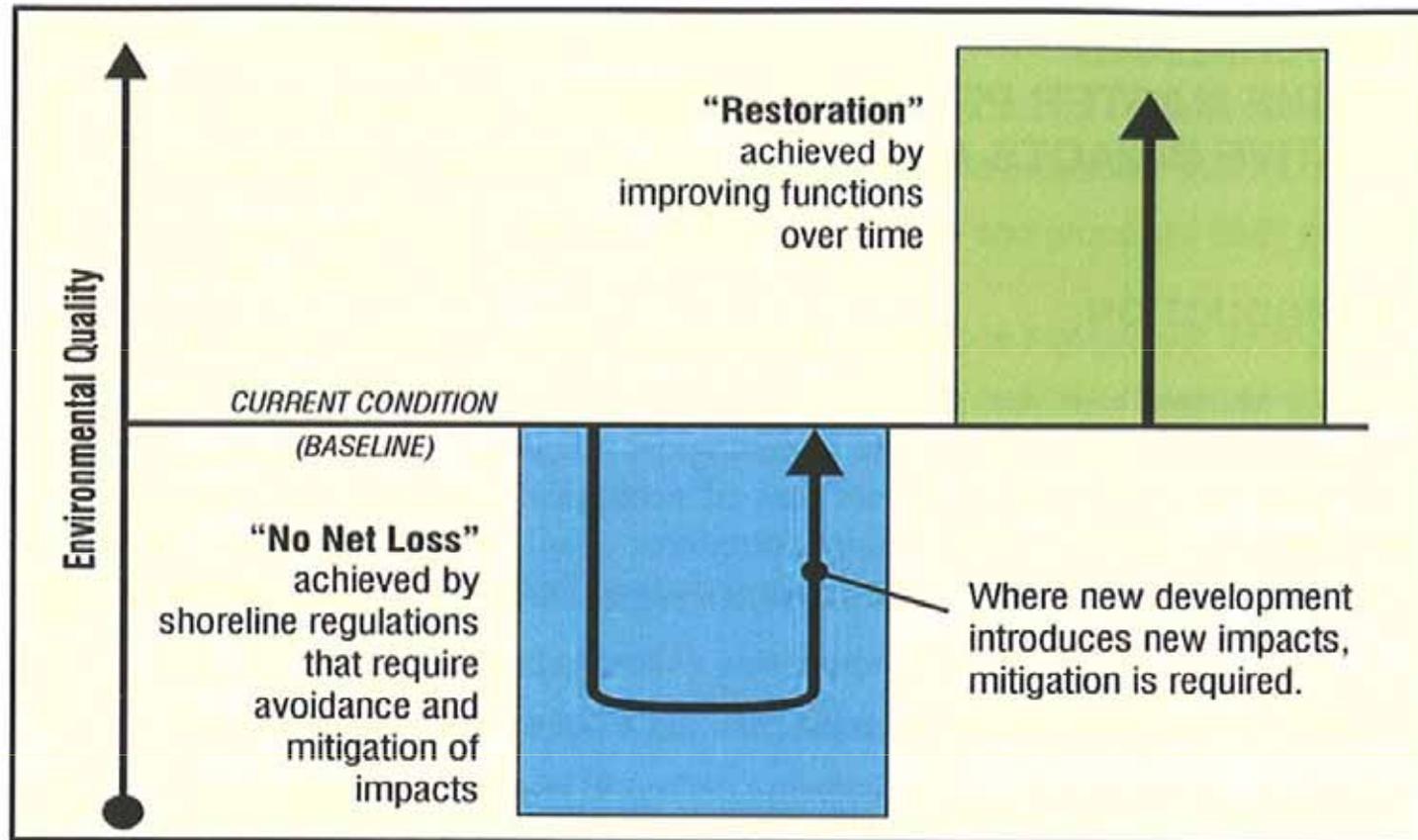
- Replacement activities require many of the same provisions as new structures, while repair activities have fewer standards
- State Guidelines do not provide guidance to distinguish between repair and replacement
- Staff recommendation: Establish clear thresholds to better define repair v. replacement:
 - If a section of bulkhead to be replaced (as part of repair) is >15 ft. in continuous linear length, then that portion of bulkhead (not full bulkhead) should be considered replacement and comply with impact minimization standards (e.g. evaluation potential to create coved area, fill to create shallow water, etc.)
 - If more than 75% of the linear length of the existing bulkhead is repaired (replacing toe of bulkhead), bulkhead considered a replacement bulkhead



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No Net Loss



Source: Department of Ecology



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- New development and redevelopment at increased intensity (e.g. residence closer to shoreline, vegetation removed as part of redevelopment, larger docks, etc.) introduces impacts that must be mitigated.
- What does this mean?
 - Existing standards will need to be revised to better reflect existing conditions
 - Mitigation sequencing needed (avoid, minimize, mitigate) to lessen impacts
 - For any remaining impacts, restoration of impaired functions will need to occur to offset new impacts



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Is Restoration Possible?

Environment Designation	Natural*	Restoration Potential			TOTAL
		High	Moderate	Low	
Natural	7	0	0	0	N/A
Residential - Low	8	53	19	16	96
Residential - Medium/High	7	7	10	33	57
Urban Conservancy	4	6	2	0	12
Urban Mixed	2	0	4	8	14
TOTAL	28	66	35	57	179

Review of shoreline conditions suggests restoration potential on public and privately owned properties.



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- Key questions:
 - What standards should apply?
 - What mitigation techniques should apply?
 - Variety of approaches (see pg. 14-17)
 - Setback discussion focuses on conceptual approach 3 (native plant requirement with new development) and 4 (incentive for reduced shoreline setbacks)



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How does this impact new development or redevelopment of shoreline uses (e.g. upland uses such as residences, offices, etc.)?

- Shoreline setbacks are a key issue
- Functions of shoreline setbacks:
 - Protect existing shoreline functions and habitats:
 - Water quality, storm and floodwater management, shoreline stabilization, habitat
 - Minimum 20-25' typically needed
 - Greater setback = lesser impacts (e.g. less light, noise, more ability to trap sediments and remove nutrients or other chemicals, minimize the speed and quantity of runoff, provide larger intact areas for habitat, etc.)
 - Avoid damage from flooding and erosion
 - Minimize need for new shoreline stabilization features
 - Preserve and enhance views of water
 - Maintain existing character



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- Concept:
 - Revise shoreline setbacks to be more consistent with existing standards.
 - Focus on offsetting impacts by making improvements to riparian habitat
 - How?
 - # of options presented:
 - Provide standards for shoreline vegetation
 - Provide range of voluntary restoration options, in exchange for setback reduction
 - Combination of these concepts



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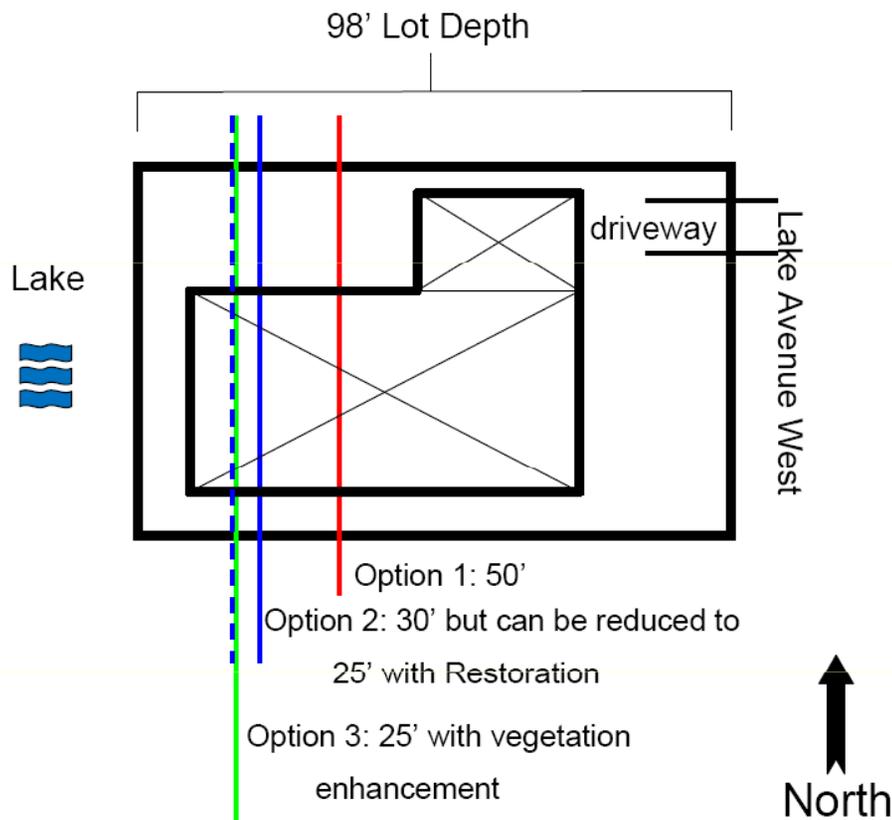
Conceptual shoreline setbacks for Residential – L environment

- Concept 1: All properties subject to larger setback – no variability to account for different lot characteristics. Setback standard would increase to be consistent with existing conditions
- Concept 2:
 - Different setbacks apply by lot depth
 - Setback standard would increase to be consistent with existing conditions
 - Restoration would be completed in exchange for voluntary reductions in setback
- Concept 3:
 - Different setbacks apply by lot depth
 - All properties undergoing development/redevelopment contribute to restoration through shoreline vegetation enhancement
- Concept 4:
 - Different setbacks apply by lot depth
 - All properties undergoing development/redevelopment contribute to restoration through shoreline vegetation enhancement
 - Additional restoration would be completed in exchange for voluntary reductions in setback

Existing Single Family Setback in Market St. Neighborhood

Lot Depth Group of < 100'

13.2' Setback (Low Range Group)



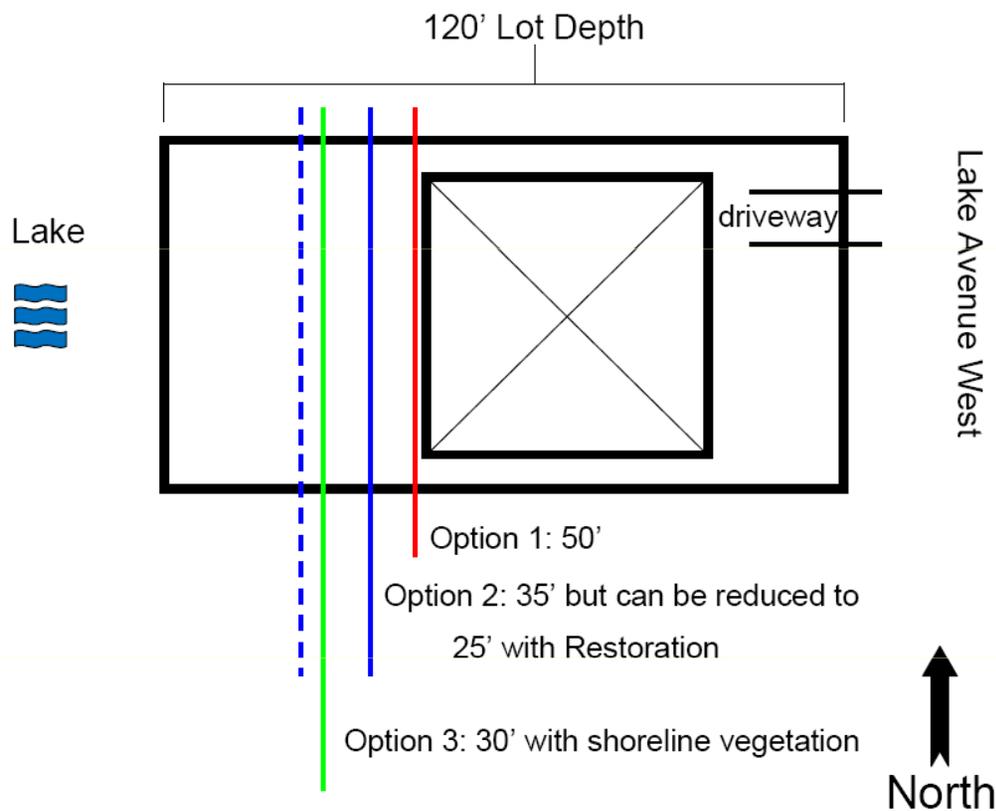
Lot < 100'

- Option 1: 50' (red)
- Option 2: 30' (solid blue), with reduction with restoration (dashed blue)
- Option 3: 25' with required shoreline plantings (green)
- Option 4: 25' with required shoreline plantings, additional reduction with additional mitigation

Existing Single Family Setback in Market St. Neighborhood

Lot Depth Group of 100' – 175'

54.71 Setback (Median Range Group)

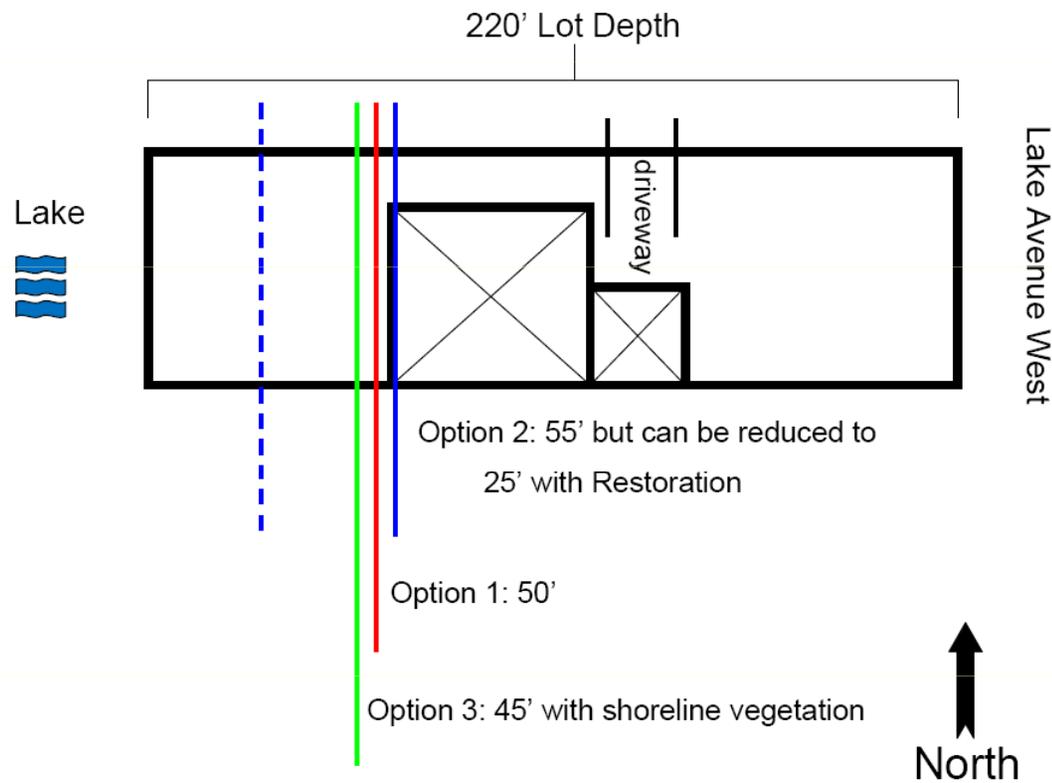


- Lot >100 and <175
- Option 1: 50' (red)
- Option 2: 35' (solid blue), with reduction to 25' with restoration (dashed blue)
- Option 3: 30' with required shoreline plantings (green)
- Option 4: 30' (green) with required shoreline plantings, 25' (dashed blue) with additional mitigation

Existing Single Family Setback in Market St. Neighborhood

Lot Depth Group of > 175'

54.71' Setback (Upper Range Group)

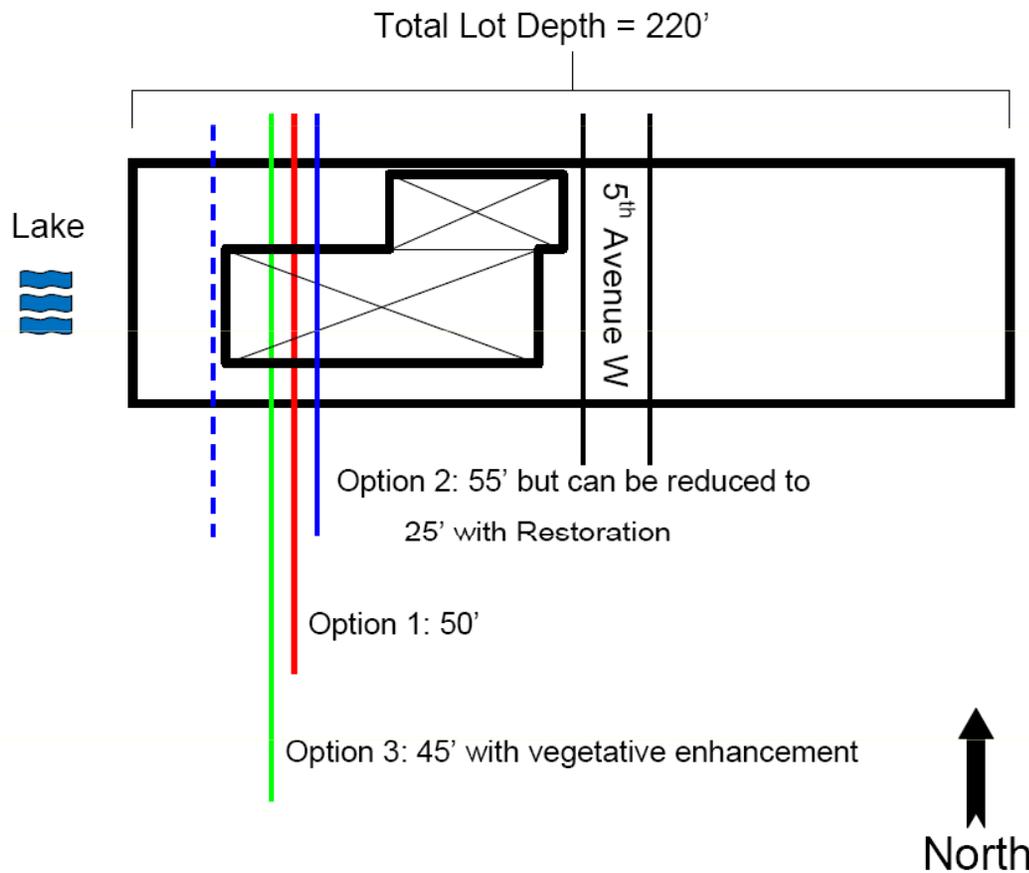


Lot > 175'

- Option 1: 50' (red)
- Option 2: 55' (solid blue), with reduction to 25' with restoration (dashed blue)
- Option 3: 45' with required shoreline plantings (green)
- Option 4: 45' (blue) with required shoreline plantings, with additional mitigation

Existing Single Family Setback in Market St. Neighborhood 5th Avenue West

31.03' Setback with split lot depth



- Lot >175' (but bisected by road)
- Option 1: 50' (red)
- Option 2: 55' (solid blue), with reduction to 25' with restoration (dashed blue)
- Option 3: 45' with required shoreline plantings (green)
- Option 4: 45' with required shoreline plantings, additional reduction with additional mitigation



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Conceptual shoreline setbacks for Residential – M/H

- Concept 1: All properties subject to larger setback – no variability to account for different lot characteristics. Setback standard would increase to be consistent with existing conditions
- Concept 2:
 - Different setbacks apply by lot depth
 - All properties undergoing development/redevelopment contribute to restoration through shoreline vegetation enhancement
- Concept 3:
 - Different setbacks apply by lot depth
 - All properties undergoing development/redevelopment contribute to restoration through shoreline vegetation enhancement
 - Additional restoration would be completed in exchange for voluntary reductions in setback



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Conceptual shoreline setbacks for Urban Mixed

- Concept 1:
 - All properties subject to larger setback – no variability to account for different lot characteristics.
 - Setback standard would increase to be consistent with existing conditions
 - All properties undergoing development/redevelopment contribute to restoration through shoreline vegetation enhancement

- Concept 2:
 - Different setbacks apply to different uses (preference for water dependent uses such as marinas)
 - All properties undergoing development/redevelopment contribute to restoration through shoreline vegetation enhancement

- Concept 3:
 - Different setbacks apply to different commercial districts
 - All properties undergoing development/redevelopment contribute to restoration through shoreline vegetation enhancement



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Conceptual shoreline setbacks for Urban Conservancy

– Concept 1:

- Different setbacks apply to different uses (preference for water dependent uses such as marinas)
- All properties undergoing development/redevelopment contribute to restoration through shoreline vegetation enhancement



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Question: If options include required shoreline vegetation enhancement, what size of addition/remodel project should be subject to this requirement?

- **# of different tools that could be used – threshold may depend on what is required:**
 - **All new construction**
 - **Increases in square footage**
 - » **% of existing building or gross floor area**
 - » **Set amount**
 - **Cost of improvement**
 - » **Set amount**
 - » **% of total building evaluation**
 - » **% of total assessed valuate of property and improvements**



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- Meeting format:
 - Small group working session
 - Large group format with shoreline property owners
 - Large group format with varied representatives

Question: Which format would Planning Commission recommend?



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- Schedule
 - December 11th next meeting
 - Focus on:
 - Shoreline setbacks (based on initial PC direction)
 - Shoreline vegetation standards (based on initial PC direction)
 - Complete review of outstanding general regulations from 9/11 packet
 - Complete review of shoreline uses and shoreline modifications from 10/9 packet



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ANY QUESTIONS?