Attachment 1

Future Shoreline Ecological Function Performance Analysis

Attachment 5 describes foreseeable shoreline development, shoreline processes potentially affected by development, SMP provisions that protect shoreline ecological processes, and other relevant regulatory programs. The future performance of shoreline ecological functions is then assessed based on the general type and amount of expected development of the listed use in the shoreline and the level of protection the proposed SMP and other regulations provide. Future performance is ranked "reduction," "no change," and "improvement" depending on the expected changes in ecological functions from existing conditions over the next seven years (i.e., up to the next SMP update cycle).

Based on this assessment, the cumulative actions taken over time in accordance with the proposed SMP are not likely to result in a net loss of shoreline ecological functions from existing baseline conditions. Since most ecological functions along Lake Washington, Sammamish River and Swamp Creek are heavily influenced by conditions and activities throughout the upper watershed, most ecological functions will continue to function at the same level in the city, and some will improve over time.

Note that most development is subject to the State Environmental Policy Act (SEPA) unless categorically exempt. As such SEPA is not listed in the table below, but it remains a regulatory tool affecting many projects in the shoreline and is a "safety net" regulation that provides authority to mitigate impacts where specific regulations have not been adopted. Also, critical areas regulations that apply outside of the shoreline jurisdiction will protect shoreline functions by limiting vegetation removal, improving water quality, and preserving habitat. Because these benefits apply to all development in the shoreline, they are not listed below.

Relevant Uses and Modifications	**Foreseeable Development**	**Shoreline Processes Potentially Affected by Development** (refer to Table 2 in cumulative impacts analysis memo for current status of ecosystem processes)	**SMP Provisions to Protect Shoreline Processes**	**Other Regulatory Programs Addressing Potential Impacts**	**FUTURE PERFORMANCE**
LAKE WASHINGTON					
Uses					
Aquaculture	Development of aquaculture is unlikely in Kenmore's Lake Washington jurisdiction in the foreseeable future. In the past, the only aquaculture uses have been crawfish production, and these no longer exist. There have been no proposals for an aquacultural use in recent memory.	No shoreline processes likely to be affected.	Policies in section 23.3 of Kenmore Shoreline Sub-Element would be used to guide and control impacts from aquaculture if such uses are proposed in the future. KMC 16.50.030 and KMC 16.50.04 require water quality protection and bank protection to prevent erosion.	Hydraulics Code – Hydraulics Project Approval (HPA) permitting process Department of Ecology Water Quality Certification Clean Water Act Section 404 and/or Rivers and Harbors Act Section 10 permits	**No change** Aquaculture is not expected in foreseeable future.

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Commercial Development	New mixed-use development, including commercial uses, is expected in the near term through redevelopment of areas of LAKE_WA_03, particularly LakePointe property. Structures within the shoreline could extend up to 75 feet in height in limited, already developed areas on the north shore of Lake Washington. On the south side of the waterway at the northeast corner of Lake Washington, structures up to 45 feet in height would be allowed as close as 50 feet from the water, which could cause some shading of the waterway in fall and winter months.	An increase in impervious surface and density of land use along the waterfront could increase input of pollutants (including phosphorus) to the lake, affecting water quality. Any associated installation of new shoreline armoring could result in altered hydrology, further loss of habitat functions and loss of recruitment potential for large woody debris (LWD). Water dependent commercial uses could include over water structures that could impact fish habitat. Shading of a small area of water from taller structures is not expected to affect ecological functions of the north Lake Washington area, which is currently developed with industrial docks and regularly dredged.	Policies in section 18 of Kenmore Shoreline Sub-Element state that commercial development should be primarily confined to the Downtown Waterfront. Policy LU-23.5.5 requires mitigation for all commercial development to ensure no net loss of ecological processes and functions. Previously approved LakePointe development plans include re vegetation and restoration along the shore, and future applications are expected to be similar. Policy LU-21.3.2 requires that impacts be avoided, minimized and mitigated. KMC 16.50.030 requires non-water oriented commercial uses to provide public benefits, such as restoration. KMC 16.65.020 requires setbacks and vegetation protection for commercial uses. See discussion of SMP provisions that address shoreline stabilization, piers and docks. Critical areas regulations would provide protection of Lake Washington wetlands.	City zoning, building, clearing and grading permits National Pollution Discharge Elimination System (NPDES) Construction Stormwater General Permit requirements NPDES Individual Permit for discharge to surface waters HPA permitting process Department of Ecology Water Quality Certification Section 404 and/or Section 10 permits Model Toxics Control Act (MTCA)	**Improvement** Commercial redevelopment in this area would include clean up and restoration of some of the most adversely modified shorelines that exist in the jurisdiction today.

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Manufacturing	Existing manufacturing and industrial uses in LAKE_WA_03 are not expected to change in the foreseeable future, and redevelopment into other uses is encouraged by the City. There are no expected increases in manufacturing or industrial uses in Kenmore, but some modification of existing uses could occur. This could include expansion of water-dependent dock facilities associated with existing uses.	There could be continuing effects on lake water quality from existing manufacturing and industrial uses, such as turbidity and spillage from barge loading and unloading. An increase in impervious surface and density of land use along the waterfront could increase input of pollutants to the lake, affecting water quality. Any associated installation of new shoreline armoring could result in altered hydrology, further loss of habitat functions and loss of recruitment potential for LWD. Water dependent uses could include over water structures that could impact fish habitat.	Policy LU-17.1.7 encourages redevelopment of industrial sites into mixed urban uses. Policy LU-17.3.3 generally discourages industrial uses and requires restoration along with commercial redevelopment in the Urban Conservancy environment. Policies LU-23.6.1 through LU-23.6.9 encourage redevelopment, clean up and restoration of industrial sites. Critical areas regulations would provide protection of Lake Washington wetlands. See discussion of SMP provisions that address shoreline stabilization, piers and docks.	City zoning, building, clearing and grading permits NPDES Construction Stormwater General Permit requirements NPDES Individual Permit for discharge to surface waters HPA permitting process Department of Ecology Water Quality Certification Section 404 and/or Section 10 permits Model Toxics Control Act (MTCA)	**Improvement** Redevelopment in LAKE_WA_03 would include clean up and restoration
Park/Recreation	New public access is expected to be a primary demand in the shoreline, particularly in the Downtown Waterfront environment in LAKE_WA_03. An expanded beach is being considered at Log Boom Park. There will not likely be significant changes in other park/recreation uses (such as St. Edward Park) along Lake Washington.	Park and recreation facilities that do not require structures or new impervious surface are unlikely to impact shorelines processes and functions. Unaltered, vegetated shorelines in existing parks would continue to benefit shoreline processes. Facilities involving new structures and impervious surface could affect water	GOAL 19.2 states that recreation sites be well-maintained. Policy LU-19.2.2 limits public access to low-intensity, passive recreation in the Natural and Urban Conservancy environments. GOAL 19.8 requires that recreation include protection for shoreline ecological processes and functions. Policy LU-19.10.4 requires that	City zoning, building, clearing and grading permits HPA permitting process Section 404 and/or Section 10 permits	**Improvement** New public access planned for the LakePointe property would include shoreline restoration, which will improve shoreline vegetation and reduce runoff and erosion from the site.

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		quality by increasing pollutants, such as phosphorus, and result in a loss of recruitment potential for LWD. Recreational uses increase turbidity, resuspend contaminated sediments and introduce other pollutants. Recreational uses affect water quality, spread invasive plant species and cause noise that affects fish and wildlife.	recreation uses be consistent with protection of shoreline. KMC 16.50.030 limits park and recreation uses in the shoreline and requires mitigation for impacts such that there is no net loss of shoreline ecological processes and functions. KMC 16.50.070 limits recreation uses. KMC 16.65.020 requires setbacks for park and recreation uses. KMC 16.50.030. requires public access improvements with all commercial, manufacturing, and multifamily development, and all public projects.		
Residential Development	Single-family zones along Lake Washington are nearly fully developed with homes; Only six lots remain undeveloped, and most of those are held in common ownership with adjacent homes. Primary change in single family zones is expected to include the addition or replacement of existing homes, docks, and bulkheads. Multi-family zones along the north end of Lake Washington are developed to the degree	Residential redevelopment could increase the amount of impervious surface, shoreline armoring, and docks/piers, and disturb remaining native shoreline vegetation. The results could include loss of riparian habitat and LWD recruitment potential, altered hydrology and degraded water quality including increased water temperature. Residential development could be a source of excessive nutrients such as	Policy LU-21.3.2 requires that impacts be avoided, minimized and mitigated. Policy LU-23.10.2 requires that residential setbacks protect shoreline ecological processes, provide space for vegetation enhancement. Policy LU-23.10.14 requires that new residential development protect groundwater, control erosion, and protect water quality. KMC 16.65.020 requires	City zoning, building, clearing and grading permits NPDES Construction Stormwater General Permit requirements Section 404 and/or Section 10 permits	**No Change** New setback provisions for single family development and redevelopment, mitigation requirements, and improved shoreline stabilization and dock standards would protect shoreline conditions

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	allowed by existing zoning and are unlikely to be further developed. Multi-family uses are planned to be included in the LakePointe redevelopment project (see discussion of commercial uses above).	phosphorus from lawn care and fertilizer use.	setbacks for residential uses. See discussion of SMP provisions that address shoreline stabilization, piers and docks.		
Government Services, Regional Land Uses and Utilities	Activities in this group of uses are expected to include continued development of local roads and utility improvements serving the shoreline area. There is also a possibility of a passenger ferry terminal, which could include both on-land and in-water facilities. Kenmore Air is a regional land use providing airport services, and is expect to continue to use the Kenmore waterfront.	These uses could adversely affect fish migration areas, could increase input pollutants (including phosphorus) to surface water, and could increase impervious surfaces and reduce shoreline vegetation. Reduction of shoreline vegetation would limit LWD recruitment and increase water temperature. Improvements to combined sewer outfalls could improve water quality over time.	KMC 16.50.030 requires that ferry and airport uses be evaluated as Shoreline Conditional Uses, and that other transportation and utility uses only be allowed when no other alternative is feasible. KMC 16.50.080 restricts the location of utility uses to protect habitat and water quality. See discussion of SMP provisions that address shoreline stabilization, piers and docks.	City zoning, building, clearing and grading permits NPDES Construction Stormwater General Permit requirements NPDES Individual Permit for discharge to surface waters HPA permitting process Section 404 and/or Section 10 permits	**No Change** Development standards ensure no net loss of functions. Ferry and combined sewer overflow changes are not certain to occur.
In-Water Structural Uses	The only anticipated uses in the category are replacement of combined sewer overflows and development of a passenger ferry terminal.	These uses could adversely affect fish migration areas, could increase input pollutants to surface water including phosphorus, and could increase impervious surfaces and reduce shoreline vegetation. Reduction of shoreline vegetation would limit LWD recruitment and increase water temperature.	KMC 16.55.030 requires that these two uses be evaluated as Shoreline Conditional Uses. See discussion of SMP provisions that address shoreline stabilization, piers and docks.	NPDES Construction Stormwater General Permit requirements NPDES Individual Permit for discharge to surface waters HPA permitting process Section 404 and/or Section 10 permits	**No Change** Development standards ensure no net loss of functions. Ferry and CSO changes are not certain to occur.

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Modifications					
Shoreline Stabilization	Stabilization could be installed to protect existing commercial and single family development on Lake Washington. Additional stabilization could be required for new water dependent uses such as at LakePointe, however, most the shoreline on that property is already armored. Incentive for converting a portion of existing stabilization to green shorelines may result in modification of existing bulkheads.	Stabilization can adversely affect shallow nearshore areas used for fish migration and rearing. Stabilization could also result in altered hydrology, further loss of habitat functions and loss of recruitment potential for LWD. Incentive provision allowed only if the reconstructed stabilization would reduce the impacts of the existing stabilization structure on ecological functions.	KMC 16.55.030 limits when shoreline stabilization may be allowed. KMC 16.55.040 includes measures to minimize impacts from new stabilization, when allowed. 16.75.050 Allows alteration or reconstruction of nonconforming stabilization under limited circumstances, when the result would improve ecological functions	City zoning, building, clearing and grading permits National Pollution Discharge Elimination System (NPDES) Construction Stormwater General Permit requirements NPDES Individual Permit for discharge to surface waters HPA permitting process Section 404 and/or Section 10 permits	**No Change** Replacement and new stabilization would be allowed, but compliance would require no net loss of ecological functions. Development standards address hydrology, channel migration, critical habitat, and other issues. Possible improvement where incentive program allows reconstruction of non-conforming stabilization.
Piers and Docks	Almost all single-family lots have a dock, therefore most activity in these areas would be replacement of existing docks. In the commercial zone, docks and piers could be developed for existing or new water dependent uses. Incentive provided by allowing expansion of non-conforming docks when the result would be a reduction in impacts, due to moving dock further from nearshore.	Docks and piers can adversely affect shallow nearshore areas used for fish migration and rearing.	KMC 16.55.050 requires specific mitigation for new docks as described in RGP-3 or demonstration of an equivalent level of protection. 16.75.050 Allows expansion of nonconforming docks under limited circumstances, when the result would improve ecological functions	City zoning, building, clearing and grading permits NPDES Construction Stormwater General Permit requirements HPA permitting process Section 404 and/or Section 10 permits	**No Change** Replacement and new piers and docks would be allowed, but compliance would require no net loss of ecological functions. Possible improvement where incentive program allows expansion of non-conforming docks.

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Fill, Grading and Dredging	Maintenance dredging is likely to continue adjacent to the Downtown Waterfront shoreline to allow continued use by water dependent uses. Dredging may also be proposed at Arrowhead Point where sedimentation from a stream has filled in the nearshore in an area with residential docks. Dredge disposal could also occur Filling in the nearshore may be necessary to create additional swimming beach area at Log Boom Park. Clearing and grading could occur with any shoreline development where development or redevelopment occurs.	Dredging could affect turbidity and disturb benthic organisms in the short term. This could adversely affect fish migration or rearing. Dredging could also affect shoreline stability for adjacent shorelands, triggering the need for additional stabilization. Filling in the nearshore to create a beach could also affect fish migration and rearing, and could result in a loss of emergent vegetation. Grading and clearing could result in loss of vegetation, and expose soil to erosion during construction. Reduction of shoreline vegetation would limit LWD recruitment and increase water temperature. Soil erosion could result in increased nutrient loading.	KMC 16.55.060 limits when filling, grading and dredging may occur, and where dredge disposal may occur. KMC 16.60 provides standards for vegetation protection.	City zoning, building, clearing and grading permits NPDES Construction Stormwater General Permit requirements HPA permitting process Section 404 and/or Section 10 permits	**No Change** Dredging, fill and grading would be allowed, but compliance would require no net loss of ecological functions.
SAMMAMISH RIVER					
Uses					
Commercial Development	New mixed-use development, including commercial uses, is expected in the near term through redevelopment of areas of SAM_RV_01, particularly LakePointe property Structures within the shoreline could extend up to 65 feet in	An increase in impervious surface and density of land use along the waterfront could increase input of pollutants to the river, increase water temperature, alter natural flow path processes, and affect	Policies in section 18 of Kenmore Shoreline Sub-Element state that commercial development should be primarily confined to the Downtown Waterfront. Policy LU-23.5.5 requires mitigation for all commercial	City zoning, building, clearing and grading permits NPDES Construction Stormwater General Permit and Coverage NPDES Individual Permit for discharge to surface waters	**Improvement** Commercial redevelopment in this area would include clean up and restoration

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	height in limited, areas on the north shore of the Sammamish River, subject also to buffer enhancement requirements.	groundwater recharge. Any associated installation of new shoreline armoring could result in altered hydrology, further loss of habitat functions, loss of spawning gravel and loss of recruitment potential for LWD. Minor shading of water from taller structures could occur in early morning and late afternoon in summer months, but is not likely to adversely affect ecological functions.	development to ensure that it does not cause a net loss of ecological processes and functions; LakePointe development plans include extensive revegetation and restoration. Policy LU-23.6.3 encourages restoration and clean up of industrial sites. Policy LU-21.3.2 requires that impacts be avoided, minimized and mitigated. KMC 16.50.030 requires non-water oriented commercial uses to provide public benefits, such as restoration.	Section 404 and/or Section 10 permits	
Manufacturing	There are no expected increases in manufacturing or industrial uses in Kenmore, but some modification of existing uses could occur. This could include expansion of water-dependent dock facilities associated with existing uses. The LakePointe property, which has been and continues to be used for manufacturing and industrial uses is expected to be redeveloped into mixed urban uses in the foreseeable future.	An increase in impervious surface and density of land use along the waterfront could increase input of pollutants to the lake, affecting water quality including an increase in water temperature. Any associated installation of new shoreline armoring could result in altered hydrology, further loss of habitat functions and loss of recruitment potential for LWD. Water dependent or water -	Policy LU-17.1.7 encourages redevelopment of industrial sites into mixed urban uses. Policies LU-23.6.1 through LU-23.6.9 encourage redevelopment, clean up and restoration of industrial sites. Critical areas regulations would provide protection of Sammamish River wetlands and riparian zones. See discussion of SMP provisions that address shoreline stabilization, piers and docks.	City zoning, building, clearing and grading permits NPDES Construction Stormwater General Permit requirements NPDES Individual Permit for discharge to surface waters HPA permitting process Department of Ecology Water Quality Certification Section 404 and/or Section 10 permits Model Toxics Control Act	**Improvement** Redevelopment at LakePointe property would include clean up and restoration

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		related manufacturing uses could include over water structures that could impact fish habitat.	Policy LU-23.5.5 requires mitigation for all manufacturing development to ensure that it does not cause a net loss of ecological processes and functions. Previously approved LakePointe development plans include revegetation and restoration along the shore, and future applications are expected to be similar. Policy LU-23.6.3 encourages restoration and clean up of industrial sites. Policy LU-21.3.2 requires that impacts be avoided, minimized and mitigated. KMC 16.50.030 requires non-water oriented manufacturing uses to provide public benefits, such as restoration. KMC 16.65.020 requires setbacks for manufacturing uses. See discussion of SMP provisions that address shoreline stabilization, piers and docks.		
Park/Recreation	New public access is expected to be a primary demand in the shoreline, particularly in the Downtown Waterfront environment. The existing WDFW boat Launch may also	Park and recreation facilities that do not require structures or new impervious surface are unlikely to impact shorelines processes and functions.	GOAL 19.2 states that recreation sites be well-maintained. Policy LU-19.2.2 limits public access to low-intensity, passive recreation in the Natural and	City zoning, building, clearing and grading permits HPA permitting process Section 404 and/or Section 10 permits	**Improvement** New public access planned for the LakePointe and Swamp Creek property would

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	be expanded or modified. Swamp Creek Park at the Sammamish River is likely to undergo ecological restoration as well as public access Potential exists for a public trail on north side of Sammamish River.	Unaltered, vegetated shorelines in existing parks would continue to benefit shoreline processes. Facilities involving new structures and impervious surface could affect water quality and result in a loss of recruitment potential for LWD. Recreational uses increase turbidity, resuspend contaminated sediments and introduce other pollutants. Recreational uses affect water quality, spread invasive plant species and cause noise that affects fish and wildlife.	Urban Conservancy environments. GOAL 19.8 requires that recreation include protection for shoreline ecological processes and functions. Policy LU-19.10.4 requires that recreation uses be consistent with protection of shoreline. KMC 16.50.030 limits park and recreation uses in the shoreline and requires mitigation for impacts such that there is no net loss of shoreline ecological processes and functions. KMC 16.50.070 limits recreation uses. KMC 16.65.020 requires setbacks for park and recreation uses. KMC 16.50.030 requires public access improvements with all commercial, manufacturing, and multifamily development, and all public projects.		include shoreline restoration.
Residential Development	Single-family zones along the Sammamish River are nearly fully developed with homes; Primary change in single family zones is expected to include the addition or replacement of existing homes, docks, and bulkheads.	Residential redevelopment could increase the amount of impervious surface, shoreline armoring, and docks/piers, and disturb remaining native shoreline vegetation. The results could include loss of riparian habitat and LWD	Policy LU-21.3.2 requires that impacts be avoided, minimized and mitigated. Policy LU-23.10.2 requires that residential setbacks protect shoreline ecological processes, provide space for vegetation	City zoning, building, clearing and grading permits NPDES Construction Stormwater General Permit requirements Section 404 and/or Section 10 permits	**No Change** New setback provisions for single family development and redevelopment, mitigation requirements, and improved shoreline

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	Multi-family zones along the Sammamish River are developed to the degree allowed by existing zoning and are unlikely to be further developed. Multi-family uses are planned to be included in the LakePointe redevelopment project (see discussion of commercial uses above).	recruitment potential, altered hydrology including loss of aquifer recharge and altered natural flow path processes, and degraded water quality including increased water temperature. Residential development could be a source of excessive nutrients from lawn care and fertilizer use.	enhancement. Policy LU-23.10.14 requires that new residential development protect groundwater, control erosion, and protect water quality. KMC 16.65.020 requires setbacks for residential uses. See discussion of SMP provisions that address shoreline stabilization, piers and docks.		stabilization and dock standards would protect shoreline conditions.
Government Services, Regional Land Uses and Utilities	Activities in this group of uses are expected to include continued development of local roads and utility improvements serving the shoreline area. No major regional roads or facilities are expected.	These uses could adversely affect fish migration areas, could increase input pollutants to surface water affecting water quality, could increase impervious surfaces affecting aquifer recharge and natural flow path processes, and reduce shoreline vegetation affecting LWD recruitment and water temperature. Improvements to combined sewer outfalls could improve water quality over time.	KMC 16.50.030 requires that ferry uses be evaluated as Shoreline Conditional Uses, and that other transportation and utility uses only be allowed when no other alternative is feasible. KMC 16.50.080 restricts the location of utility uses to protect habitat and water quality. See discussion of SMP provisions that address shoreline stabilization, piers and docks.	City zoning, building, clearing and grading permits NPDES Construction Stormwater General Permit requirements NPDES Individual Permit for discharge to surface waters HPA permitting process Section 404 and/or Section 10 permits	**No Change** Development standards ensure no net loss of functions.
In-Water Structural Uses	No in-water structural uses are anticipated.	These uses could adversely affect fish migration areas, could increase input pollutants to surface water	KMC 16.55.030 requires that these two uses be evaluated as Shoreline Conditional Uses. See discussion of SMP	City zoning, building, clearing and grading permits NPDES Construction Stormwater General Permit	**No Change** No in-water structural uses are

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		affecting water quality, could increase impervious surfaces affecting aquifer recharge and natural flow path processes, and reduce shoreline vegetation affecting LWD recruitment and water temperature.	provisions that address shoreline stabilization, piers and docks.	requirements NPDES Individual Permit for discharge to surface waters HPA permitting process Section 404 and/or Section 10 permits	anticipated.
Modifications					
Shoreline Stabilization	Stabilization could be installed or replaced to protect existing commercial and single family development. Additional stabilization could be required for new water dependent uses such as at LakePointe, however, most the shoreline on that property is already armored. Incentive for converting a portion of existing stabilization to green shorelines may result in modification of existing bulkheads.	Stabilization can adversely affect shallow nearshore areas used for fish migration and rearing. Stabilization could result in loss of spawning gravel, shoreline vegetation and LWD recruitment, resulting in increased water temperatures. Incentive provision allowed only if the reconstructed stabilization would reduce the impacts of the existing stabilization structure on ecological functions.	KMC 16.55.030 limits when shoreline stabilization may be allowed. KMC 16.55.040 includes measures to minimize impacts from new stabilization, when allowed. 16.75.050 Allows alteration or reconstruction of nonconforming stabilization under limited circumstances, when the result would improve ecological functions	City zoning, building, clearing and grading permits NPDES Construction Stormwater General Permit requirements NPDES Individual Permit for discharge to surface waters HPA permitting process Section 404 and/or Section 10 permits	**No Change** Replacement and new stabilization would be allowed, but compliance would require no net loss of ecological functions. Possible improvement where incentive program allows reconstruction of non-conforming stabilization.
Piers and Docks	Few properties on the Sammamish River have docks or piers, in part because about one quarter of the shoreline is publicly owned, or has wetlands. New residential docks could be proposed on most of the river. In the Downtown Waterfront, docks and piers could be developed for existing or new water dependent uses.	Docks and piers can adversely affect shallow nearshore areas used for fish migration and rearing. Incentive provided by allowing expansion of non-conforming docks when the result would be a reduction in impacts, due to moving dock further from nearshore.	KMC 16.55.050 requires specific mitigation for new docks or demonstration of an equivalent level of protection. 16.75.050 Allows expansion of nonconforming docks under limited circumstances, when the result would improve ecological functions	City zoning, building, clearing and grading permits NPDES Construction Stormwater General Permit requirements HPA permitting process Section 404 and/or Section 10 permits	**No Change** Replacement and new piers and docks would be allowed, but compliance would require no net loss of ecological functions. Possible improvement where incentive program

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	Incentive provided by allowing expansion of non-conforming docks when the result would be a reduction in impacts, due to moving dock further from nearshore.				allows expansion of non-conforming docks.
Fill, Grading and Dredging	Maintenance dredging is likely to continue adjacent to the Downtown Waterfront shoreline near the mouth of the river to allow continued use by water dependent uses. Clearing and grading could occur with any shoreline development where development or redevelopment occurs.	Dredging could affect turbidity and disturb benthic organisms in the short term. This could adversely affect fish migration or rearing. Dredging could also affect shoreline stability for adjacent shorelands, triggering the need for additional stabilization. Grading and clearing could result in loss of vegetation, and expose soil to erosion during construction. Reduction of shoreline vegetation would limit LWD recruitment and increase water temperature. Soil erosion could result in increased nutrient loading.	KMC 16.55.060 limits when filling, grading and dredging may occur, and where dredge disposal may occur. KMC 16.60 provides standards for vegetation protection.	City zoning, building, clearing and grading permits NPDES Construction Stormwater General Permit requirements HPA permitting process Section 404 and/or Section 10 permits	**No Change** Dredging, fill and grading would be allowed, but compliance would require no net loss of ecological functions.
SWAMP CREEK					
Uses					
Commercial Development	New or expanded commercial development could occur in commercial zones where NE Bothell Way crosses Swamp Creek, provided that public access and riparian restoration is included in the development	Expansion of commercial development along Swamp Creek could cause further vegetation impacts, increase stormwater runoff and increase pollutants in the creek.	Policies on commercial development (section 17.3 of Shoreline Sub-Element) require ecological restoration and public access be provided. Policy LU-23.5.5 requires mitigation for all commercial	City zoning, building, clearing and grading permits NPDES Construction Stormwater General Permit and Coverage NPDES Individual Permit for	**Improvement** Commercial expansion or redevelopment in this area would require ecological enhancement

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	proposal. Structures within the shoreline could extend up to 75 feet in height in commercially zoned areas on the west shore of Swamp Creek, but such development would also be required to comply with riparian setbacks that would preserve and, in most cases, increase the width of native buffers.	Additional impervious surface could also cause further modifications to aquifer recharge and natural flows.	development to ensure that it does not cause a net loss of ecological processes and functions. KMC 16.50.030 requires that new commercial uses in Urban Conservancy include public access and ecological enhancement. Policy LU-21.3.2 requires that impacts be avoided, minimized and mitigated.	discharge to surface waters Section 404 and/or Section 10 permits	

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Park/Recreation	Park development could include public access improvements, habitat restoration, and passive recreation uses in several parks along Swamp Creek. In addition, public access and habitat restoration could be provided with mixed used development in the commercial area near NE Bothell Way.	Park and recreation facilities that do not require structures or new impervious surface are unlikely to impact shorelines processes and functions. Unaltered, vegetated shorelines in existing parks would continue to benefit shoreline processes. Facilities involving new structures and impervious surface could affect water quality and result in a loss of recruitment potential for LWD. Recreational uses increase turbidity, resuspend contaminated sediments and introduce other pollutants. Recreational uses affect water quality, spread invasive plant species and cause noise that affects fish and wildlife.	GOAL 19.2 states that recreation sites be well-maintained. Policy LU-19.2.2 limits public access to low-intensity, passive recreation in the Natural and Urban Conservancy environments. GOAL 19.8 requires that recreation include protection for shoreline ecological processes and functions. Policy LU-19.10.4 requires that recreation uses be consistent with protection of shoreline. KMC 16.50.030 limits park and recreation uses in the shoreline and requires mitigation for impacts such that there is no net loss of shoreline ecological processes and functions. KMC 16.50.070 limits recreation uses. KMC 16.65.020 requires setbacks for park and recreation uses.	City zoning, building, clearing and grading permits HPA permitting process Section 404 and/or Section 10 permits	**Improvement** New public access required for mixed use development would include shoreline restoration; Swamp Creek Park development will include substantial habitat restoration along with public access improvements.
Residential Development	Residential development could occur in some areas, but much of the shoreline is wetland or floodplain and thus development potential is very limited. Zoning is primarily	Residential redevelopment could increase the amount of impervious surface, shoreline armoring, and docks/piers, and disturb remaining native shoreline vegetation. The results could include loss of	Policy LU-21.3.2 requires that impacts be avoided, minimized and mitigated. Policy LU-23.10.2 requires that residential setbacks protect shoreline ecological processes,	City zoning, building, clearing and grading permits HPA permitting process Section 404 and/or Section 10 permits	**No Change** New setback provisions for single family development and redevelopment, mitigation

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	single family.	riparian habitat and LWD recruitment potential, altered hydrology including aquifer recharge and altered natural flow path processes and degraded water quality. Residential development could be a source of excessive nutrients from lawn care and fertilizer use.	provide space for vegetation enhancement. Policy LU-23.10.14 requires that new residential development protect groundwater, control erosion, and protect water quality. KMC 16.65.020 requires setbacks for residential uses. See discussion of SMP provisions that address shoreline stabilization, piers and docks.		requirements, and improved shoreline stabilization and dock standards would protect shoreline conditions.
Government Services, Regional Land Uses and Utilities	Activities in this group of uses are expected to include continued development of local roads and utility improvements serving the shoreline area as well as the larger urban area. No major regional roads or facilities are expected.	These uses could adversely affect fish migration areas, could increase input pollutants to surface water affecting water quality, could increase impervious surfaces affecting aquifer recharge and natural flow path processes, and reduce shoreline vegetation affecting LWD recruitment. Improvements to combined sewer outfalls could improve water quality over time.	KMC 16.50.030 requires that ferry uses be evaluated as Shoreline Conditional Uses, and that other transportation and utility uses only be allowed when no other alternative is feasible. KMC 16.50.080 restricts the location of utility uses to protect habitat and water quality. See discussion of SMP provisions that address shoreline stabilization, piers and docks.	City zoning, building, clearing and grading permits NPDES Construction Stormwater General Permit requirements NPDES Individual Permit for discharge to surface waters HPA permitting process Section 404 and/or Section 10 permits	**No Change** Development standards ensure no net loss of functions.

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In-Water Structural Uses	No in-water structural uses are anticipated.	These uses could adversely affect fish migration areas, could increase input pollutants to surface water affecting water quality, could increase impervious surfaces affecting aquifer recharge and natural flow path processes, and reduce shoreline vegetation affecting LWD recruitment.	KMC 16.55.030 requires that these two uses be evaluated as Shoreline Conditional Uses. See discussion of SMP provisions that address shoreline stabilization, piers and docks.	City zoning and grading permits NPDES Construction Stormwater General Permit requirements NPDES Individual Permit for discharge to surface waters HPA permitting process Section 404 and/or Section 10 permits	**No Change** No in-water structural uses are anticipated.
Modifications					
Shoreline Stabilization	In limited instances, stabilization could be installed or replaced to protect existing commercial and single-family development. Flooding has increased in some portions due to upstream changes in the watershed, and some properties have reportedly seen flooding near structures that were not previously subject to flood hazards. Incentive for converting a portion of existing stabilization to green shorelines may result in modification of existing bulkheads.	Stabilization can limit channel migration, LWD recruitment, and reduce habitat structure, and thus adversely affect areas used for fish, spawning, migration and rearing. Incentive provision allowed only if the reconstructed stabilization would reduce the impacts of the existing stabilization structure on ecological functions.	KMC 16.55.030 limits when shoreline stabilization may be allowed. KMC 16.55.040 includes measures to minimize impacts from new stabilization, when allowed. 16.75.050 Allows alteration or reconstruction of nonconforming stabilization under limited circumstances, when the result would improve ecological functions	City zoning, building, clearing and grading permits National Pollution Discharge Elimination System (NPDES) Construction Stormwater General Permit requirements NPDES Individual Permit for discharge to surface waters HPA permitting process Section 404 and/or Section 10 permits	**No Change** Replacement and new stabilization would be allowed, but compliance would require no net loss of ecological functions. Possible improvement where incentive program allows reconstruction of non-conforming stabilization.

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Piers and Docks	Few properties on the Swamp Creek have docks or piers because there is limited navigability, but at least two properties have excavated boat slips. New residential docks could be proposed. Incentive provided by allowing expansion of non-conforming docks when the result would be a reduction in impacts, due to moving dock further from nearshore.	Docks and piers can adversely affect shallow nearshore areas used for fish migration and rearing. Incentive provision allowed only if the reconstructed stabilization would reduce the impacts of the existing stabilization structure on ecological functions.	KMC 16.55.050 requires specific mitigation for new docks or demonstration of an equivalent level of protection. 16.75.050 Allows expansion of nonconforming docks under limited circumstances, when the result would improve ecological functions	City zoning, building, clearing and grading permits NPDES Construction Stormwater General Permit requirements HPA permitting process Section 404 and/or Section 10 permits	**No Change** Replacement and new piers and docks would be allowed, but compliance would require no net loss of ecological functions. Possible improvement where incentive program allows expansion of non-conforming docks.
Fill, Grading and Dredging	Filling and dredging are unlikely to occur on Swamp Creek, unless undertaken as part of a habitat restoration project. Clearing and grading could occur with any shoreline development where development or redevelopment occurs.	Grading and clearing could result in loss of vegetation which would limit LWD recruitment, and expose soil to erosion during construction which would result in increased nutrient loading.	KMC 16.55.060 limits when filling, grading and dredging may occur, and where dredge disposal may occur. KMC 16.60 provides standards for vegetation protection.	City zoning, building, clearing and grading permits NPDES Construction Stormwater General Permit requirements HPA permitting process Section 404 and/or Section 10 permits	**No Change** Grading would be allowed, but compliance would require no net loss of ecological functions.