

**DRAFT
CITY OF SAMMAMISH**

Cumulative Impacts Analysis

**Technical Addendum for
2013 Environmentally Critical Areas Updates
May 8, 2013**

Prepared for:

The City of Sammamish



TABLE OF CONTENTS

1.	INTRODUCTION	1
1.1	OVERVIEW OF PROPOSED ECA AMMENDMENTS	2
2.	GENERAL SHORELINE CONDITIONS	6
3.	REASONABLY FORESEEABLE FUTURE DEVELOPMENT	8
4.	POTENTIAL IMPACTS OF PROPOSED ECA AMMENDMENTS.....	10
4.1	FEE-IN-LIEU MITIGATION FOR STREAMS AND WETLANDS (ECA AMENDMENTS #2-8B AND #3-3B)	10
4.1.1	<i>Anticipated New Development and Uses Resulting from Amendment</i>	<i>10</i>
4.1.2	<i>Likely Effects on Shoreline Ecological Functions</i>	<i>11</i>
4.2	ALTERNATIVE WILDLIFE PROTECTION APPROACH FOR FISH AND WILDLIFE HABITAT CORRIDORS (2-13)	12
4.2.1	<i>Anticipated New Development Resulting from Amendment</i>	<i>12</i>
4.2.2	<i>Likely Effects on Shoreline Ecological Functions</i>	<i>12</i>
4.3	PROPOSED BUFFER ALLOWANCES FOR EXISTING DEVELOPMENT WITHIN CRITICAL AREAS BUFFERS (2-14c)	13
4.3.1	<i>Anticipated New Development Resulting from Amendment</i>	<i>13</i>
4.3.2	<i>Likely Effects on Shoreline Ecological Functions</i>	<i>15</i>
4.4	NEW WETLAND MITIGATION RATIOS (3-6) AND WETLAND MOSAIC REQUIREMENTS (3-7)	17
4.4.1	<i>Anticipated New Development Resulting from Amendment</i>	<i>17</i>
4.4.2	<i>Likely Effects on Shoreline Ecological Functions</i>	<i>17</i>
4.5	NEW ALLOWANCES FOR SMALL, ISOLATED WETLAND IMPACTS (3-19E)	18
4.5.1	<i>Anticipated New Development and Effects Resulting from Amendment</i>	<i>18</i>
4.5.2	<i>Likely Impacts on Shoreline Ecological Functions</i>	<i>23</i>
4.6	BUFFER REDUCTION FOR CATEGORY III AND IV WETLANDS (3-19D)	25
4.6.1	<i>Anticipated New Development and Effects Resulting from Amendment</i>	<i>25</i>
4.6.2	<i>Likely Impacts on Shoreline Ecological Functions</i>	<i>25</i>
4.7	NEW ALLOWANCES FOR DEVELOPMENT AND SUBDIVISION IN THE EROSION HAZARD NEAR SENSITIVE WATER BODIES (EHNSWB) OVERLAY (4-15)	26
4.7.1	<i>Anticipated New Development and Effects Resulting from Amendment</i>	<i>28</i>
4.7.2	<i>Likely Impacts on Shoreline Ecological Functions</i>	<i>31</i>
5.	INTEGRATED ECA PROVISIONS AND NO NET LOSS.....	33
6.	REFERENCES	38
APPENDIX A. EXCERPTS OF PLANNING COMMISSION RECOMMENDED ECA FOR MAJOR AMMENDMENT TOPICS		A-1
A-1	FEE-IN-LIEU MITIGATION FOR STREAMS AND WETLANDS (ECA AMENDMENTS #2-8B AND #3-3B)	A-1
A-2	ALTERNATIVE WILDLIFE PROTECTION APPROACH FOR FISH AND WILDLIFE HABITAT CORRIDORS (2-13)	A-4
A-3	PROPOSED BUFFER ALLOWANCES FOR EXISTING DEVELOPMENT WITHIN CRITICAL AREAS BUFFERS (2-14c)	A-7
A-4	NEW WETLAND MITIGATION RATIOS (3-6) AND WETLAND MOSAIC REQUIREMENTS (3-7)	A-11
A-5	NEW ALLOWANCES FOR IMPACTS TO SMALL, ISOLATED WETLANDS (3-19E)	A-13
A-6	BUFFER REDUCTION FOR CATEGORY III AND IV WETLANDS (3-19D)	A-14
A-7	NEW ALLOWANCES FOR SUBDIVISION IN THE EROSION HAZARD NEAR SENSITIVE WATER BODIES (EHNSWB) OVERLAY (4-15)	A-14

LIST OF FIGURES

FIGURE 1. INVENTORIED WETLANDS AND EROSION HAZARD NEAR SENSITIVE WATER BODIES (EHNSWB) OVERLAY AREAS IN THE CITY OF SAMMAMISH (CITY OF SAMMAMISH, 2005..... 21

FIGURE 2. TYPICAL WATER CYCLE BEFORE AND AFTER DEVELOPMENT. BEFORE DEVELOPMENT ALMOST ALL RAINFALL IS TAKE UP BY PLANTS, EVAPORATES OR INFILTRATES THROUGH THE GROUND. LOSS OF FOREST COVER INCREASES SURFACE RUNOFF SIGNIFICANTLY DUE TO LOSS OF EVAPO-TRANSPIRATION PROCESSES (COURTESY OF PUGET SOUND PARTNERSHIP). 30

FIGURE 3. OBLIQUE IMAGE OF NORTH-END SITE FOR POTENTIAL SUBDIVISION THROUGH THE EHNSWB OVERLAY – PILOT PROGRAM; TIGHT-LINE CONVEYANCE AND STORMWATER OUTFALL WOULD REQUIRE ALTERATION OF THE LAKE SAMMAMISH SHORELINE SETBACK AND VEGETATION MANAGEMENT AREA, AND MODIFICATION OF THE SHORELINE. 31

LIST OF TABLES

TABLE 1. PROPOSED ‘MAJOR’ ECA AMENDMENTS AND SUMMARY OF IMPLICATIONS FOR SHORELINE ECOLOGICAL FUNCTIONS 2

TABLE 2. PROPOSED ‘MINOR’ ECA AMENDMENTS AND SUMMARY OF IMPLICATIONS FOR SHORELINE ECOLOGICAL FUNCTIONS 4

TABLE 3. GENERAL LAND USE CHARACTERISTICS OF SHORELINE PROPERTIES ON LAKE SAMMAMISH, PINE LAKE AND BEAVER LAKE 9

TABLE 4. ANALYSIS OF SMALL, LOW-HABITAT VALUE, HYDROLOGICALLY ISOLATED WETLANDS THROUGHOUT THE CITY OF SAMMAMISH, COMPLETED BY CITY STAFF IN APRIL 2013. 22

TABLE 5. PROPOSED ‘MAJOR’ ECA AMENDMENTS, SUMMARY OF IMPLICATIONS FOR SHORELINE ECOLOGICAL FUNCTIONS, AND RECOMMENDATIONS TO ENSURE NO NET LOSS. 34

1. INTRODUCTION

In August 2011, the City of Sammamish adopted an updated Shoreline Master Program (SMP) (known as Title 25 of the Sammamish Municipal Code) to comply with the Washington State Shoreline Management Act¹ and the state's shoreline guidelines². As part of the update effort, the City was required to evaluate the cumulative impacts of "reasonably foreseeable" future development to verify that the proposed policies and regulations for shoreline management are adequate to ensure 'no net loss' of shoreline ecological functions. In 2010, the City completed an assessment of potential cumulative impacts from the SMP, and concluded that anticipated development and use occurring under the SMP would not result in cumulative impacts and would meet the no net loss standard (ESA Adolfson, 2010). A key component of protecting shoreline ecological functions under the adopted SMP is integration of the City's Environmentally Critical Areas (ECA) regulations (Sammamish Municipal Code Chapter 21A.50) into the SMP documentation. The SMP incorporates by reference the version of the ECA that was adopted in 2005.

The City is currently updating the ECA regulations, with anticipated local adoption occurring in June 2013. In an effort to maintain consistent standards and protections for critical areas throughout Sammamish, the City intends to incorporate the updated ECA standards into the SMP at the same time. This will require an amendment to the SMP to adopt the new ECA standards.

This document provides a planning level assessment of the potential cumulative impacts that would occur if the updated ECA standards are adopted into the SMP. The analysis is an addendum to the cumulative impact analysis (CIA) that was prepared in support of the SMP in 2010 (ESA Adolfson 2010). The draft addendum is limited in scope to focus only on currently proposed ECA amendments (Planning Commission Recommended Draft, dated February 12, 2013). This addendum will be updated to reflect any changes to proposed ECA amendments that occur through the City Council review and adoption process, and will be finalized at that time.

As with the 2010 CIA, this addendum is limited to cumulative impacts of reasonably foreseeable future development in areas subject to SMA jurisdiction. For the City of Sammamish, shorelines of the state include approximately 7 linear miles of the Lake Sammamish shoreline within the City limits, 2.2 linear miles of the Pine Lake shoreline (entirely within the City), and 2.6 linear miles of the Beaver Lake shoreline (encompassing three connected bodies of water that collectively form Beaver Lake, also entirely within the City).

¹ Revised Code of Washington (RCW) 90.58

² Washington Administrative Code (WAC) 173-26, Part III

1.1 OVERVIEW OF PROPOSED ECA AMMENDMENTS

The SMP incorporates by reference the City’s existing ECA regulations (SMC 21A.50), as adopted in 2005. ECA standards for protection of geologically hazardous areas, wetlands, critical aquifer recharge areas, and fish and wildlife habitat conservation areas (including streams) all apply within shoreline jurisdiction.

The City initiated the ECA review process in 2011 and contracted with AMEC to provide a new review of the best available science (BAS) for each element of the ECA regulations. Using AMEC’s recommendations based on best available science (AMEC 2012 a,b,c,d), as well as input from staff, citizens and other stakeholders, the City has developed a Planning Commission Recommended Draft (dated February 12, 2013) for City Council review.

The Planning Commission’s recommended ECA regulations maintain most of the critical areas protections incorporated by reference into the SMP. Some of the proposed amendments would alter the standards for wetlands, streams, fish and wildlife habitat conservations areas, and erosion hazards – all of which play an important role in maintaining shoreline ecological functions. These ‘major’ amendments have the greatest potential effect on shoreline ecological functions as summarized in Table 1.

Table 1. Proposed ‘major’ ECA amendments and summary of implications for shoreline ecological functions

ECA Amendment Number	Summary of Major Amendment	Potential Implications for Shoreline Ecological Functions Link to Detailed Analysis within this Addendum
2-8b.	Allows fee-in-lieu mitigation for impacts to streams	Neutral or Beneficial, especially with use of mitigation ‘receiving’ sites within City’s shoreline jurisdiction. See 4.1
2-13c.	Alternative wildlife protection approach for fish and wildlife habitat corridors - requires site specific analysis of wildlife habitats as opposed to reliance on outdated King County habitats map.	Beneficial, especially for habitat functions. See 4.2
2-14c.	New allowances for modification of an addition to existing structures within critical areas buffers – allows for new construction and expansion of structures within some ECA buffers which could weaken buffer protection.	Potentially negative; additional changes may be needed to prevent cumulative impacts. See 4.3
3-3b.	Allows fee-in-lieu mitigation for allowed impacts to wetlands	Neutral or Beneficial, especially with use of mitigation ‘receiving’ sites within City’s shoreline jurisdiction. See 4.1
3-6.	Revised wetland mitigation ratios – requires mitigation ratios to be based upon different types of wetland mitigation (e.g., creation, rehabilitation, etc). Clarifies expectations for	Beneficial, especially for habitat and water quality functions. See 4.4

ECA Amendment Number	Summary of Major Amendment	Potential Implications for Shoreline Ecological Functions Link to Detailed Analysis within this Addendum
	wetland mitigation and establishes consistency with state and federal regulatory guidelines.	
3-7b.	Wetland Mosaic – when applicable, requires that the City evaluate a wetland’s status as part of a mosaic of wetland features when classifying the wetland and applying ECA regulations (consistent with state and federal regulatory guidelines).	Beneficial, with limited implication in shoreline jurisdiction. See 4.4
3-19e	Allowance for Alteration of Small, Isolated Wetlands – Allows isolated wetlands less than 4,000 SF to be filled without first avoiding the impact.	Potentially negative; detailed analysis evaluates likely effects and provides recommendations for SMP incorporation. See 4.5
3-19d	15 Foot Buffer for Category III and IV Wetlands 4,000 SF or less in size – only allowed when specific criteria apply (less than 15 points for habitat; not part of a wetland mosaic; mitigation as enhancement provided for remaining buffer)	Potentially negative; additional changes may be needed to prevent cumulative impacts. See 4.6
4-15	New allowances for development in the no-disturbance area of the Erosion Hazard Near Sensitive Water Bodies (EHNSWB) Overlay.	Potentially negative to functions supporting Lake Sammamish water quality; additional changes may be needed to prevent cumulative impacts. See 4.7
	Item 4-15e provides new allowances for single-family home construction and modification on existing lots in the EHNSWB Overlay no-disturbance area; allows for an expansion in the amount of impervious surface on a site as long as there is no increase in stormwater volume.	
	Item 4-15g authorizes subdivisions in the no-disturbance area of the EHNSWB Overlay subject to a pilot program; criteria are provided directing how subdivision would manage runoff (either through a direct discharge / tightline approach, or through use of LID approaches for land development and stormwater management).	
	Item 4-15f would expand the pilot program under 4-15g to allow projects that incorporate Low Impact Development (LID) techniques and level 3 flow control to subdivide. Stormwater would be handled via existing man-made conveyances (e.g. road side ditches).	

Other ‘minor’ amendments to ECA standards are also proposed; minor amendments have beneficial or neutral implications for shoreline ecological functions (Table 2). These minor amendments generally are consistent with the BAS completed for the City in 2012. Several are

based on recommendations from City staff and public comment. This section summarizes each minor ECA amendment and identifies potential implications for shoreline ecological functions. Where implications are identified as ‘neutral’ or ‘beneficial’, no additional analysis of the minor amendment is provided.

Table 2. Proposed ‘minor’ ECA amendments and summary of implications for shoreline ecological functions

ECA Amendment Number	Summary of Minor Amendment	Implications for Shoreline Ecological Functions
Streams		
2-3	Requires that trails crossing streams and aquatic areas use bridges and raised boardwalks.	Beneficial (with limited potential application; in most instances would likely be required by HPA)
2-4	Adds functional criteria for allowing buffer reductions.	Beneficial – no significant change to circumstances where buffer reduction could be allowed; better defines functional objectives of any allowed reduction.
2-5	Adds functional criteria for increasing buffer widths.	Beneficial (with limited potential application)
2-6	Authorizes relocation of Type F streams for restoration purposes (amend language authorizing stream restoration to include stream relocation).	Beneficial (with limited potential application)
Wetland & Wetland Management Area Overlay		
3-1	Adopts the latest federal wetland delineation manual and its supplemental documents.	Neutral; use of federal 1987 wetland delineation manual is required per RCW 90.58.380
3-5	Provides additional guidance for mitigation impacts to wetland buffers.	Beneficial; establishes clear mitigation expectation and consistency with state guidance.
3-10	Creates wetland buffer reduction options in combination with preserving / maintaining wetland and buffer functions.	Neutral – no significant change to circumstances where wetland buffer reduction could be allowed; maintains incentive for restoration through reduction allowance.
3-20	Consolidates wetland definitions (public comment #75). Eliminates definitions for ‘Wetland meadow, grazed’, ‘Wetland, forested’, ‘Naturalized species, and ‘Ponds, naturally occurring’.	Beneficial – makes the wetland definition consistent with the State definition (WAC 173-22-030(10))
Lake Management Areas		
3-12	Introduces new thresholds to trigger stormwater treatment for redeveloped sites and impervious pollutant generating areas.	Beneficial – would expand Lake Management Areas requirements to some additional developments; based on recommendations from BAS (AMEC 2012c)
3-13	Allows stormwater treatment technologies that have been tested using Ecology’s TAPE protocol and given a General Use Level	Beneficial – will allow for use of treatment technologies vetted by Ecology; based on recommendations from BAS (AMEC 2012c)

ECA Amendment Number	Summary of Minor Amendment	Implications for Shoreline Ecological Functions
	designation to be incorporated into stormwater treatment systems in the Lake Management Areas.	
3-14	Reference the King County or Ecology stormwater manual procedures to size, analyze, and design stormwater treatment BMPs for phosphorus reduction.	Beneficial – links design requirements to current King County and Ecology stormwater manual procedures; based on recommendations from BAS (AMEC 2012c)
Erosion Hazard Areas		
4-1	Defines the “fully mitigated” conditions when construction is exempt from the seasonal clearing restrictions and allowed during the wet season.	Beneficial
4-2	Specifies actions required when measured site discharges exceed state water quality criteria.	Beneficial
Erosion Hazard near Sensitive Water Body Overlay		
4-3	Amends the description of the top of the no-disturbance area for clarity and requires delineation of the no-disturbance area by qualified consultant	This proposed ECA amendment is discussed as part of major amendments proposed for the EHNSWB Overlay.

2. GENERAL SHORELINE CONDITIONS

The City of Sammamish shorelines are influenced by human actions and natural processes. Lake Sammamish, Pine Lake and Beaver Lake are part of the East Lake Sammamish (ELS) basin, which encompasses most of the City of Sammamish as well as areas west and south of the City. Historically this is one of the fastest growing areas in King County with a population that increased 157 percent during the 1980s (King County, 1994). In 2010, the City's population was estimated to be 45,780 (U.S. Census, 2010), up from an estimated population of 38,640 in 2005 (3.7 percent cumulative annual growth rate over the 5 year period).

Key basin-wide and reach-specific circumstances affecting the City's shorelines are documented in the 2010 CIA and the Reach Inventory and Analysis of the *Shoreline Inventory and Characterization Report* (ESA Adolfson, 2007). These circumstances have not changed substantially in the last 3 years.

- Across the ELS basin, the trend of increases in impervious surface and loss of forest cover has continued with new development.
- Residential uses (primarily single-family), park/public recreational uses, and transportation and utility uses are the only land uses present in the shoreline planning area.
- The majority of the existing platted lots in private ownership contain a single-family residence and the percent of undeveloped or vacant lots is very low (approximately 18 percent vacant along Lake Sammamish shoreline and approximately 5 percent vacant on both the Pine and Beaver Lake shorelines).
- Single-family development has modified much of the shoreline environment, including bank 'hardening', private residential docks, and vegetation clearing.
- Most of the existing lots were created between 40 and 70 years ago and there is limited ability to substantially alter the general development patterns.
- Circumstances affecting only Lake Sammamish:
 - The established lot pattern results in a higher average density than would be permitted under the City's development code (SMC 21A) with lot areas far smaller than would be permitted under the adopted SMP. This development pattern differs from what would normally result from zoning rules.
 - Publicly owned lots along the shoreline are located on the northern end of the City limits; these areas are currently in the initial stage of development as Sammamish Landing (a public park). Improved public access has been established to Sammamish Landing since the time of SMP adoption; this access is integrated with access provided via the East Lake Sammamish Trail.
 - Restoring and protecting the north end of Lake Sammamish is identified as one of the near-term actions in the WRIA 8 Chinook Salmon Conservation Plan (WRIA 8, 2005). However, the limited amount of undeveloped publicly owned shoreline, as

well as undeveloped or underdeveloped privately owned shoreline, may limit opportunities for restoration adjacent to the shoreline.

- Circumstances affecting only Pine and Beaver Lakes:
 - Municipal sewer service is sparsely available (except along the southern and western side of Pine Lake and the east side of Beaver Lake); existing (and new) developments (will) rely mainly on on-site septic systems for the foreseeable future; subdivision within areas currently served by on-site septic systems is unlikely without connection to municipal sewer service.
 - Lot sizes are relatively large and the amount of vegetative cover as a percentage of the lot size is somewhat higher than on Lake Sammamish.

3. REASONABLY FORESEEABLE FUTURE DEVELOPMENT

Reasonably foreseeable future development in City's shoreline jurisdiction is generally unchanged since the 2010 CIA. The only uses that presently occur within shoreline jurisdiction are residential uses (primarily single-family), park or public recreational uses (on public park lands), and transportation and utility uses. Future development is likely to maintain these uses, with no industrial, commercial or mixed uses expected in the foreseeable future.

In July 2010 the City adopted a master plan for Sammamish Landing, the publically owned park properties at the northern end of the Lake Sammamish shoreline (City of Sammamish, 2010). The first phase of Sammamish Landing construction is largely complete, with connections to East Lake Sammamish Parkway and the Eastlake Sammamish Trail, internal trails, other improvements, and two new public docks (replacements) (City of Sammamish, 2013). Future project phases will more intensively develop the park to provide enhanced public access. The Park Master Plan also calls for creation of a pocket beach and areas of riparian enhancement; these future project phases are slated to begin in 2013 and continue for several years.

The City completed major improvements to East Lake Sammamish Parkway between 2009 and 2010 (NE Inglewood Hill Rd to 2200 block). Portions of this major roadway pass within the Lake Sammamish shoreline jurisdiction. The 2013 - 2018 6-Year Transportation Improvement Program (TIP) identifies additional phases of East Lake Sammamish Parkway improvements; however no funding for these phases is indicated within the next ten years. No other significant roadway projects occurred within shoreline jurisdiction between 2009 and 2013.

Minimal new shoreline residential development or significant redevelopment has occurred over the last 4 years (since the 2010 CIA). On the Lake Sammamish shoreline, there are approximately four lots where new residences have been constructed (Table 3). A few other existing residential developments have repaired and/or replaced docks. Even less new development has occurred on the Pine and Beaver Lake shorelines; one new development on Beaver Lake has occurred, and no new development on Pine Lake.

General patterns of anticipated future development remain consistent with the 2010 CIA. Some development of existing private recreational lots will likely occur along Lake Sammamish, as will redevelopment of existing, older homes on all three lakes. Development at Sammamish Landing will continue consistent with the approved Master Plan. Some projects providing improvements to public roadways and public and private utilities will also likely occur, although none are identified at this time.

Table 3. General land use characteristics of shoreline properties on Lake Sammamish, Pine Lake and Beaver Lake

Lake	Total Number of Parcels	2009 Vacant Parcels		Change: 2009 - 2013		Shoreline Parks and Open Spaces
		Number	% of total	New Development (#)	% of total	
Lake Sammamish	421	77	18%	4	87%	Sammamish Landing (new park) at north end of lake in early stages of development consistent with adopted Master Plan; East Lake Sammamish Trail runs parallel to the lakeshore
Pine Lake	147	8	5%	0	75%	Pine Lake Park: park on east side of lake w/ 450 ft. of restored shoreline
Beaver Lake	125	8	6%	1	73%	NE Beaver Lake: Preserve open space w/ 1800 ft. of natural shoreline; SW: Park w/ 2100 ft. of minimally modified shoreline

4. POTENTIAL IMPACTS OF PROPOSED ECA AMMENDMENTS

The following sections describe potential new development and associated impacts that could result from the proposed ‘major’ ECA amendments if integrated into the SMP. The proposed amendment language is attached to this addendum in strikethrough / underline format for each topic that is described (see Appendix A links included within each section of this Chapter). Outside of these ECA amendments and the minor ammendments summarized and addressed in Chapter 1, no other changes to the regulatory approach assessed in the 2010 CIA is proposed.

4.1 Fee-In-Lieu Mitigation for Streams and Wetlands (ECA Amendments #2-8b and #3-3b)

The City is updating the ECA to allow for use of fee-in-lieu mitigation for stream and wetland impacts through City-approved fee-in-lieu programs. The amendment lists the King County Mitigation Reserves Program as an option for fee-in-lieu mitigation, and requires Washington State approval for any fee-in-lieu program to be used for wetland mitigation.

The proposed ECA amendment maintains primary preference for on-site mitigation, followed by mitigation within the same-drainage subbasin and within City limits³. Only after it is documented that these options are not feasible and that the proposed fee-in-lieu mitigation approach will result in ‘equivalent or greater hydrological, water quality and wetland or aquatic area habitat functions’ will the City approve a fee-in-lieu mitigation proposal.

See [A-1](#) of Appendix A for redline/strikeout versions of proposed ECA amendments allowing fee-in-lieu mitigation for permitted stream and wetland impacts.

4.1.1 Anticipated New Development and Uses Resulting from Amendment

The proposed allowance for use of fee-in-lieu mitigation would not change the range of development activities or uses that are allowed to impact streams, wetlands, and their buffers. Fee-in-lieu mitigation only provides a new outlet for compensatory mitigation after avoidance and minimization measures are implemented. Fee-in-lieu mitigation will provide a feasible mitigation alternative on sites where on-site mitigation is not feasible. As such, the proposed amendments are not likely to result in new development, nor are they likely to limit anticipated shoreline use and development.

³ City staff has considered development and operation of an in-city fee-in-lieu mitigation program; such a program would meet preferential requirements for location within City jurisdiction. From initial consideration, a City-run program appears cost-prohibitive.

The proposed amendments will likely influence where and how mitigation occurs in the future. Development within shoreline jurisdiction is often constrained by the existing pattern of small and narrow lots and there is often insufficient space to accommodate on-site mitigation. As shoreline development and allowed critical areas impacts occur, it is likely that City approved fee-in-lieu mitigation could become a common approach.

4.1.2 Likely Effects on Shoreline Ecological Functions

The proposed amendment is consistent with the 2008 federal mitigation rule (33 CFR Part 332 and 40 CFR Part 230) and with state guidance for fee-in-lieu mitigation (Ecology 2012) and using a ‘watershed approach’ (Hruby et al. 2009) to site mitigation projects. Projects eligible for fee-in-lieu program will be projects where existing site conditions and constraints would prevent successful on-site mitigation.

Allowing for off-site, third-party mitigation through a State and federally approved fee-in-lieu mitigation program such as the King County Mitigation Reserves Program will likely improve mitigation outcomes and benefit shoreline ecological functions. Allowable impacts occurring in an area that is already highly altered will be replaced in areas identified for long term protection and restoration due to ecological condition. Benefits to shoreline ecological functions within Sammamish would be maximized by establishing and using in-City mitigation receiving site(s). King County Mitigation Reserves Program staff have indicated that they are open to in-City sites as part of an interlocal agreement with Sammamish (personal communication with Maxim, April 2013), although no such sites have been identified or secured to date.

4.2 Alternative Wildlife Protection Approach for Fish and Wildlife Habitat Corridors (2-13)

The adopted ECA wildlife habitat corridor regulations and fish and wildlife habitat conservation standards rely on habitat and species maps prepared by King County. The maps were generated using aerial photos and have not been updated in a significant way since their original adoption by King County (from 2000) and do not reflect subsequent development patterns in the City.

Proposed ECA amendment #2-13c would revise the City’s approach for protection of wildlife habitat corridors by relying on site-specific analysis and evaluation of habitat connectivity between the proposed development site and high value habitat areas. The proposed approach would require habitat corridors to be established between streams and/or wetlands of high habitat value. Developments would be required to establish and set aside contiguous tracts that connect high value habitat areas (Type F and Np streams, wetlands with a habitat score of 29 points or higher) on the development site to other high value habitat areas within 200 feet. Corridors are required to be at least 300 feet wide unless an alternative width is approved through a habitat management plan.

The amendment would link wildlife habitat corridor / fish and wildlife habitat conservation regulations to existing conditions, and would also include new mechanisms for flexibility in site design to meet both habitat connectivity and site development goals.

See [A-2](#) of Appendix A for redline/strikeout versions of proposed ECA amendments updating approach for designation and protection of Fish and wildlife habitat corridors.

4.2.1 Anticipated New Development Resulting from Amendment

The proposed amendment is not likely to result in new development, nor is it likely to limit anticipated shoreline use and development. The proposed approach for identifying and protecting fish and wildlife habitat corridors is based on existing conditions. As such, corridors will extend from existing high habitat value resources – areas that are already protected by ECA wetland and stream standards. While the proposed approach may result in designation of some areas that are not currently covered by King County habitat and species maps, it would also remove areas that are currently mapped but that do not provide linkages between high value habitats. Additionally, flexibilities for corridor protection and use provided by ECA 21A.50.327 further limit implications the amendment could have on new development.

4.2.2 Likely Effects on Shoreline Ecological Functions

The amendment would likely have a positive benefit on shoreline ecological functions. The proposed approach for establishing habitat corridors would require linkages between adjacent streams and/or wetlands of high habitat value – an improvement over the existing map-based approach, as amendment would focus on existing conditions and protection of important fish and wildlife habitats where they occur, including areas within shoreline jurisdiction and linking to shoreline jurisdiction.

Given existing development patterns and associated alterations within shoreline jurisdiction, it is likely that beneficial effects of this amendment would occur most often in habitat areas along or associated with the Pine and Beaver Lake shorelines. Dense, relatively small lot residential development, road and trail infrastructure, and other modifications near the Lake Sammamish shoreline likely limit the number of existing habitat corridors that would require protection through this amendment.

4.3 Proposed Buffer Allowances for Existing Development within Critical Areas Buffers (2-14c)

The City is considering new allowances for addition or expansion of existing development occurring in the standard buffer of a wetland, stream, landslide hazard area, fish and wildlife habitat conservation area or habitat corridor. Current allowances adopted in the ECA, and very similar allowances adopted in the SMP, provide for limited expansion of legally established single-family homes – either where the expansion would not increase the structure footprint in the buffer, or where the footprint would increase only by 1,000 square feet (SF) for single-family homes that were legally constructed prior to November 1990. The existing allowances as integrated into the SMP were assessed and determined, along with other elements of the adopted SMP, to not result in net loss of shoreline ecological functions (ESA Adolfson 2010).

The proposed amendment would allow for expansion of any existing, legal building (meaning any structure with a roof), and would allow 1,000 SF of expansion within the standard buffer area for any such building. For any legally established single-family home within a critical area buffer, expansion would be allowed toward the critical area edge whenever there is an ‘intervening building(s) on a perpendicular line in between the subject critical area(s)’ and the single detached dwelling unit in question.

See [A-3](#) of Appendix A for redline/strikeout versions of proposed ECA amendments providing additional allowances for existing development within critical areas buffers.

4.3.1 Anticipated New Development Resulting from Amendment

Many of the allowances listed as ‘Partial exemptions – critical areas’ from SMC 21A.50.060 are included as part of the SMP in SMC 25.08.100(1)(a)⁴. The purpose of these SMP standards is to allow for reasonable maintenance, reconstruction of, and addition to legally established structures (including legally created single detached residences) that existed prior to adoption of the 2011 SMP and that do not meet required building setback or buffer requirements. Specifically, the SMP currently allows for:

- *Structural modification of, addition to or replacement of existing legally created structures, except single detached residences in existence before November 27, 1990,*

⁴ Within shoreline jurisdiction, adopted standards of SMC 25.08.100(1)(a) apply instead of the existing ‘Partial exemptions – critical areas’ section of the ECA (SMC 21A.50.060(1)(a)).

which do not meet the building setback or buffer requirements for wetlands, streams, ponds or landslide hazard areas if the proposed action does not increase the existing footprint of the structure lying within the building setback area, critical area or buffer; and

- *Structural modification of, addition to or replacement of legally created single detached residences in existence before November 27, 1990, which do not meet the building setback or buffer requirements for wetlands, streams, ponds or landslide hazard areas if the modification, addition, replacement or related activity does not increase the existing total footprint of the residence and associated impervious surface lying within the above-described buffer or building setback area by more than 1,000 square feet over that existing before November 27, 1990, and no portion of the modification, addition or replacement is located closer to the critical area. Mitigation of impacts to critical areas or buffers disturbed is required and shall be evaluated to assure no net loss of ecological function.*

The policy intent of this amendment is to provide additional flexibility for property owners with existing development within a critical areas buffer. The ECA amendment, if integrated into the SMP, would provide more allowances for existing development within critical areas buffers:

- More broad application to include fish and wildlife habitat conservation area buffers and habitat corridor buffers (in addition to wetland, stream and landslide hazard buffers).

In many instances, areas that require protection as fish and wildlife habitat conservation areas / habitat corridors are actually streams and wetlands. In these instances, the ECA standards for streams and wetlands are used to provide necessary protection for habitat functions. For these instances, it is logical that development allowances between ECA sections are consistent. However, there are situations where a habitat conservation area or habitat corridor is not a wetland or stream; as such, this change does expand the application of proposed buffer allowances.

- New allowance for expansions up to 1,000 SF in footprint within critical areas buffers for **buildings** and associated impervious surfaces. Use of the term ‘buildings’ expands the proposed allowance to include ‘any structure having a roof’ (SMC 21A.15.125). All allowances currently integrated into the SMP are for *existing legally created structures* or *legally created single detached* residences in a buffer, which for shoreline jurisdiction primarily includes legally created single-family homes.

Further, the allowance for a 1,000 SF expansion currently only applies for legally created single detached residences that were built before November 27, 1990. Expanding this provision to apply to any building – no matter when built or for what purpose – greatly expands the amount of in-buffer development that could occur.

- The amendment would allow expansion toward the critical area whenever there is an ‘intervening building(s) on a perpendicular line in between the subject critical area(s)’ and the single detached dwelling unit in question.

The adopted SMP and existing, adopted ECA both require that any allowed expansion occur away from the adjacent critical area, and only allow for expansion of footprint within the buffer for single-family homes created before November 1990.

- Requirements for a critical areas study and ‘mitigation for impacts to disturbed critical areas or buffers’ whenever these allowances for expansion are used. The proposed amendment clearly states that mitigation is required such that there is *“a net improvement in hydrologic and habitat values to the subject critical area(s) through restoration of degraded critical areas and/or buffer or through provision of additional vegetated buffer.”* Consistent with proposed new wetland buffer impact mitigation ratios specified by ECA amendment #3-6, this could result in buffer replacement at greater than a one-to-one (1:1) ratio.

Allowances for existing development within critical areas buffers provided by the adopted SMP and ECA currently require that such allowed development be completed consistent with regulatory provisions. This suggests that existing code language already requires mitigation for these development allowances. The proposed amendment does however clarify expectations for mitigation.

A detailed analysis of existing legally established buildings adjacent to wetlands and streams is not available. However, based on our understanding of common development patterns and landscape conditions surrounding Lake Sammamish, Pine Lake and Beaver Lake, we anticipate that proposed allowances could result in many new building expansions (to homes, garages, outbuildings, sheds or other roofed structures) within standard critical areas buffers.

4.3.2 Likely Effects on Shoreline Ecological Functions

The best available science review completed by the City documents importance of vegetated buffers adjacent to streams, wetlands, fish and wildlife habitat conservation areas, and landslide hazard areas (AMEC, 2012a, b, d, and f). Buffers are a key management strategy for reducing impacts from adjacent uses and development. Buffers adjacent to wetlands, aquatic resources and other habitat conservation areas commonly provide terrestrial habitat for numerous wildlife species (many of which are also dependent on the adjacent resource). Allowances for buffer modification provided by amendment 2-14c are not supported by best available science (AMEC, 2012a, b, d, and f).

Adopted ECA buffer provisions and use allowances, especially for wetlands and streams, were reviewed as part of the 2010 CIA, which determined that the SMP would result in no net loss of ecological functions. However, the proposed allowances create greater potential for ecological impacts. The allowances are generally inconsistent with Ecology guidance for protection of wetlands and streams (Ecology et al. 2006, AMEC 2012a and d). While allowances for standard wetland buffer reduction or averaging are common in many jurisdictions, most jurisdictions require restoration of degraded conditions as a means of achieving no net loss. Ecology guidance (and proposed ECA amendment #2-5 which would apply to stream buffers) recommends widening wetland and stream buffers when they are degraded or otherwise not well vegetated. State guidance would suggest that where existing development occurs in a

standard wetland or stream buffer, it may be impairing buffer functions and a wider buffer should be provided for the immediately surrounding area.

Recommendations for ECA Integration

If proposed allowances for existing development are to apply in shoreline jurisdiction as detailed in the Planning Commission Recommended ECA, anticipated new development would likely result in cumulative adverse impact to shoreline ecological functions. Based on review of best available science, consideration of existing conditions and anticipated development, and conclusions provided in the 2010 CIA, we recommend that the City maintain current allowances provided by SMC 25.08.100 or consider the following changes to achieve no net loss of ecological function:

- Limit the allowance to existing legally created single detached dwelling units and associated impervious surfaces. Allowing for expansion of any building would greatly increase potential new development within wetland, stream, and other critical area buffers. Single-family residences are a preferred use under the Shoreline Management Act; other appurtenant buildings are not preferred uses, and as such should be further restricted in the SMP. Allowing further buffer alteration for such buildings will encourage further buffer and critical area encroachment, likely resulting in loss of shoreline ecological function (even if compensatory mitigation is required).
- Provide additional criteria for avoidance and minimization of buffer encroachment. The proposed amendment requires mitigation for allowed buffer impacts; however, regulations should clearly require consideration of mitigation sequencing to make sure expansions within the standard buffer are only allowed when alternative site designs are not feasible, and that any justified expansion within the buffer minimizes impacts to ecological functions to the greatest extent feasible.
- Remove allowance for single detached dwelling unit expansion into a buffer when there is 'an intervening building(s) on a perpendicular line'. This approach is inconsistent with Ecology guidance, which recommends widening wetland and stream buffers when warranted by existing conditions and functions (such as other existing modification within the buffer). The intervening building approach is also difficult to administer, as such a building could include a garden shed or other similar building (buildings that may not require or have obtained a permit from the City before construction).

As an alternative to this allowance, we recommend relying on the avoidance and minimization criteria suggested above. Where an applicant can document that an existing single detached dwelling unit is encumbered (by lot dimensions and critical areas / buffers) to an extent that the only option for allowed expansion would result in a narrower buffer, then such an expansion could be allowed.

- Specify clear expectations for buffer mitigation where modification is allowed. Ecology guidance suggests use of buffer averaging where no feasible site design alternatives are available that maintain a standard buffer (Ecology 2010). Criteria should require buffer averaging consistent with Ecology guidance, where feasible. Where on-site buffer averaging is not feasible, off-site mitigation should be provided consistent with City

requirements. Off-site mitigation should be provided for a wetland or stream along the same shoreline, whenever feasible, and should require replacement through enhancement at a minimum two to one (2:1) ratio. Under all circumstances, mitigation should require enhancement and/or rehabilitation of on-site areas of the critical area and associated buffer (as designated following allowance for encroachment) as necessary to achieve a dense vegetated canopy of native trees and shrubs.

4.4 New Wetland Mitigation Ratios (3-6) and Wetland Mosaic Requirements (3-7)

Proposed ECA amendment #3-6 specifies wetland mitigation ratios to be dependent on the kind of mitigation proposed (e.g., creation, rehabilitation, etc). This amendment is consistent with Ecology guidance for protection of wetland areas, and will likely improve mitigation outcomes in the future.

Proposed ECA amendment #3-7 pertains to wetlands occurring in a 'wetland mosaic' condition. The amendment specifies that where small wetlands occur in immediate proximity to other wetlands (with only small upland hummocks and other micro-topography separating wetland areas), the wetlands should be delineated, functionally assessed, and regulated as one system (a wetland mosaic). When applicable, the proposed amendment requires that a wetland mosaic be rated and regulated as one feature when classifying and applying ECA regulations, including buffers.

See [A-4](#) of Appendix A for redline/strikeout versions of proposed ECA amendments requiring new wetland mitigation ratios and consideration of wetland mosaic conditions.

4.4.1 Anticipated New Development Resulting from Amendment

The proposed amendments are not likely to result in new development, nor are they likely to limit anticipated shoreline use and development.

The existing lot patterns within City's shoreline jurisdiction may limit options for use of the proposed wetland mitigation ratios. Lots are generally small, especially on Lake Sammamish; where wetland impacts are permitted, achieving specified mitigation ratios may require applicants to consider off-site areas. As a result, the proposed amendment may promote use of off-site mitigation options, including fee-in-lieu mitigation currently being considered (ECA amendment 3-3b).

If existing information documented in the City's wetland inventory or the Shoreline Inventory and Characterization Report suggested there were numerous wetland mosaic landscapes in shoreline jurisdiction, the proposed amendment could have resulted in reduced future development potential. However, there is no existing information documenting wetland mosaic conditions in any portion of the City's shoreline jurisdiction (ESA Adolfson 2007).

4.4.2 Likely Effects on Shoreline Ecological Functions

The proposed amendments are consistent with state guidance for wetlands protection (Ecology et al. 2006). Introduction of mitigation ratios clarifies expectations for wetland mitigation. This

amendment is expected to result in an overall benefit to shoreline ecological functions as development and associated wetland mitigation (where required) occurs both inside and outside of shoreline jurisdiction.

Due to existing development patterns and available wetland inventory information, there are likely very few instances where wetland mosaic conditions occur in shoreline jurisdiction. That said, where these conditions do occur (both within and outside shoreline jurisdiction), the proposed amendment is expected to ensure appropriate protection for wetland mosaic conditions, generally benefitting shoreline ecological functions.

4.5 New Allowances for Small, Isolated Wetland Impacts (3-19e)

Within the City’s currently adopted ECA regulations, the City allows alteration (fill) of isolated wetlands less than 1,000 SF in size (SMC 21A.50.320) without mitigation⁵. The proposed amendment would maintain the existing alteration allowance; however would clearly state that such impacts require full compensatory mitigation pursuant to an approved mitigation plan.

The proposed amendment would also allow up to 2,500 SF of permanent alteration (fill) for low habitat value, isolated wetlands between 1,000 SF and 4,000 SF in size. The amendment includes criteria that must be met before this allowance could be granted, including requiring that the wetland not: be ‘adjacent’ to a riparian area, part of a wetland mosaic, score 15 points or more for habitat value (per the wetland rating system), or contain habitats essential for priority species identified by WDFW. As with the 1,000 SF alteration allowance, applicants are not required to avoid impacts as a first priority; but full compensatory mitigation for impacts is required.

See [A-5](#) of Appendix A for redline/strikeout versions of proposed ECA amendments providing new allowances for impacts to small, isolated wetlands.

4.5.1 Anticipated New Development and Effects Resulting from Amendment

To understand the potential effects the proposed allowances could have on shoreline ecological functions, it is important to consider how often (if ever) isolated wetlands could occur in the City’s shoreline jurisdiction. The ECA defines an isolated wetland as ‘*a wetland that is hydrologically isolated from other wetlands or streams, does not have permanent open water, and is determined to be of low function.*’ (SMC 21A.15.1410).

This definition is generally consistent with language provided by the U.S. Army Corps of Engineers (Corps)⁶ and Ecology; however Clean Water Act guidance from these agencies provides nuanced direction in determining whether a wetland is ‘hydrologically isolated’ or not.

⁵ Some functions lost through allowed impacts to small, isolated wetlands can be replaced by site design requirements for stormwater management.

⁶ Clean Water Act definitions and guidance for determination of wetland isolation do not, however, account for the functions provided by the wetland.

Ecology provides specific guidance for isolated wetlands because they are often excluded from federal regulation under the Clean Water Act (Ecology et al. 2006). However, isolated wetlands are not excluded from regulation under the State Water Pollution Control Act (Chapter 90.48 RCW) and Ecology maintains authority to review and approve impacts to isolated wetlands through its Administrative Orders.

Corps' Clean Water Act guidance provides a basis for determining whether or not a wetland is isolated. Jurisdiction is generally asserted over the following aquatic resources / wetlands (Corps and EPA 2008):

- Traditional navigable waters
- Wetlands adjacent to traditional navigable waters
- Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months)
- Wetlands that directly abut such tributaries

For instances where wetland isolation is unclear (for example, wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary), the Corps determines jurisdiction *based on a fact-specific analysis to determine whether such wetlands have a significant nexus with a traditional navigable water*. The 'significant nexus' standard includes assessment of the *flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters* (includes consideration of hydrologic and ecologic factors).

The City could potentially make a determination of wetland isolation that did not concur with the Corps determination. If the City made a determination that a wetland was isolated and the Corps determined it was not isolated, impacts to the wetland in question would still have to meet all federal wetland regulations. If the City determined association and the Corps determined isolation, impacts would have to meet all City ECA requirements for wetland protection (no allowance for alteration without avoidance and minimization) as well as any Ecology requirements.

Small, Isolated Wetlands within Shoreline Jurisdiction

The City's Wetland Inventory GIS data was reviewed to identify known wetlands that may meet the 4,000 square foot size threshold near Lake Sammamish, Pine Lake and Beaver Lake (Figure 1). No inventoried (mapped) wetlands intersect or are within 300 feet of mapped shoreline jurisdiction that are less than 4,000 SF in size (Figure 1)⁷. Although this suggests that the

⁷ Only 6 total wetlands are inventoried as intersecting or within 300 feet of mapped shoreline jurisdiction; all of these wetlands are much larger than 4,000 square feet, and documented as hydrologically associated with adjacent lakes within the City Sammamish Inventory and Characterization Report.

proposed small, isolated wetland amendment would have limited effect in shoreline jurisdiction, inventoried wetlands likely represent a small fraction of the total number of wetlands within the City and shoreline jurisdiction. In other words, there are likely many small wetlands present in shoreline jurisdiction that do not appear on the maps.

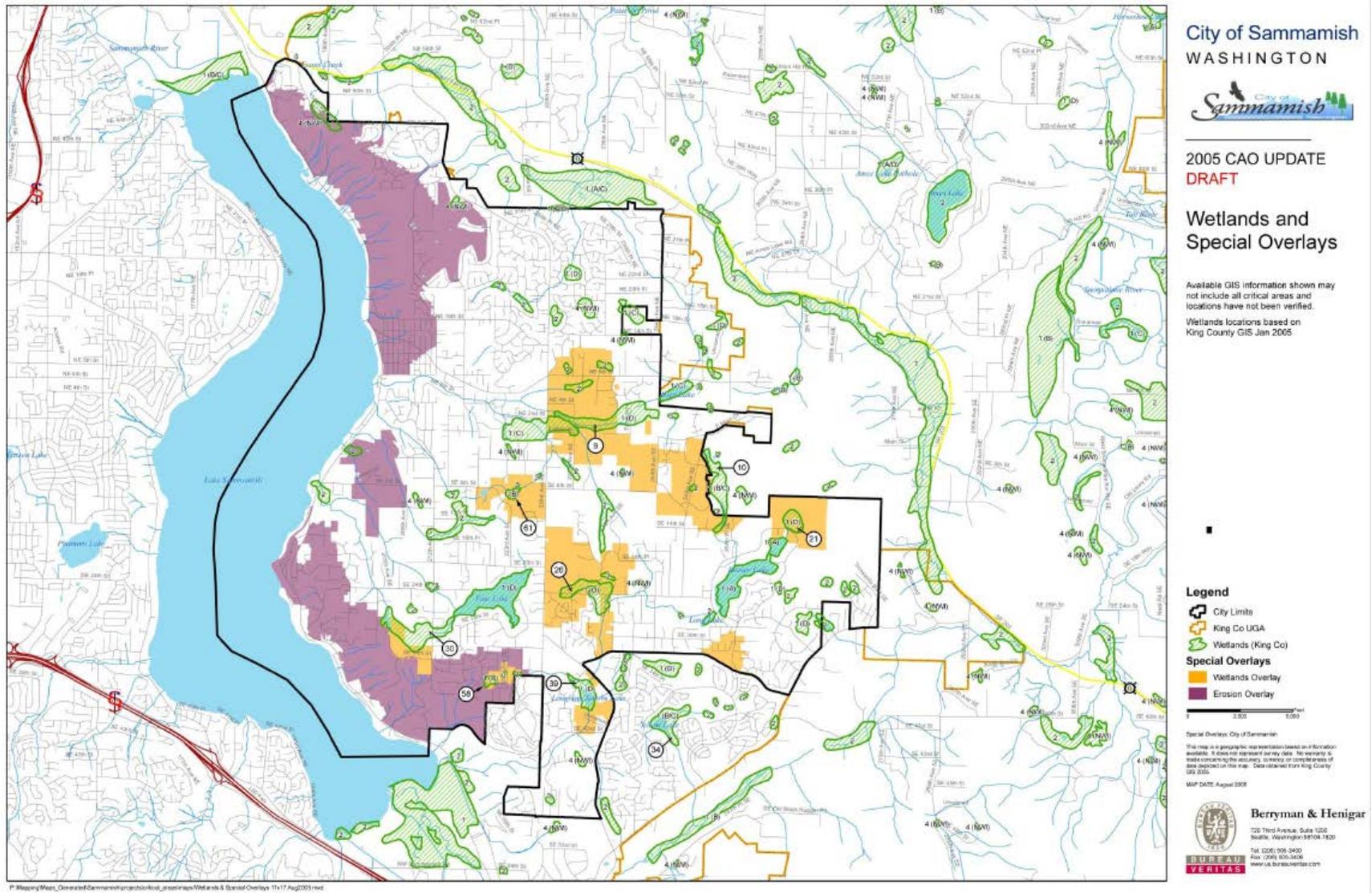


Figure 1. Inventoried Wetlands and Erosion Hazard near Sensitive Water Bodies (EHNSWB) Overlay areas in the City of Sammamish (City of Sammamish, 2005)

Sammamish staff assessed City-wide potential effects for the small, isolated wetland amendment by reviewing all development proposals since incorporation in 1999 (personal communication and data from Curry and Maxim 2013). Site plans were identified where one or more low habitat value, hydrologically isolated wetlands under 4,000 SF in size occurred. Habitat value (*'low value'* meaning scoring less than 15 habitat points on the Western Washington Wetland Rating System) and hydrologic isolation was determined based on site information on file ⁸.

The review quantified the number of relevant wetlands on a relatively small subset of properties (those subject to a development application) (Table 4).

Table 4. Analysis of Small, Low-Habitat Value, Hydrologically Isolated Wetlands throughout the City of Sammamish, completed by City Staff in April 2013.

	Total Number of Parcels	Analysis of Small, Low-Habitat Value, Hydrologically Isolated Wetlands (Completed in 2013)	
		Number of identified wetlands less than 1000 SF	Number of identified wetlands 1000 to 4000 SF
City-Wide		12	42
Lake Sammamish	421	0	0
Pine Lake	147	0	0
Beaver Lake	125	0	0

Through the assessment of permit information described above, no confirmed hydrologically isolated wetlands within the City's shoreline jurisdiction were identified.

Wetland delineation and assessment information completed for the East Lake Sammamish Trail project was also reviewed (Parametrix 2005) to obtain an estimate of the number/extent of small wetlands within shoreline jurisdiction. A total of 49 wetlands were delineated and assessed within the City (78 were identified along the entire Redmond-Sammamish-Issaquah project corridor). Of the 49 wetlands, only 1 was identified as 'depressional closed' under the Hydrogeomorphic Classification system (2 total of all 78 wetlands). The report describes this ~1700 SF wetland (wetland #18c) as a hydrologically isolated area with no surface drainage. The report does not state whether the isolation determinations were confirmed by the City of

⁸ Several limitations were noted for this analysis: In many cases, the specific wetland size is not known because this information has not been tracked as it was not relevant to the particular application review; in this case, the wetland's size was estimated using a scaled ruler and then only wetlands that appeared to be clearly under the specific size threshold were reported here. If a wetland was shown to be in proximity to another wetland or stream, or the wetland's outlet or inlet was described as a connection to other wetland or stream features, the wetland was not considered to be hydrologically isolated. Finally, it is difficult to extrapolate these numbers to all parcels in the City.

Sammamish, Ecology, or the Corps. For the City's Lake Sammamish shoreline area, this is the only identified wetland that could potentially meet the City's definition of 'isolated' and be altered by the proposed small, isolated wetland amendment.

The only other known wetland in shoreline jurisdiction that could potentially be affected by the proposed small, isolated wetland amendment is on Beaver Lake. The property in question has completed a critical areas report in support of potential development, with consultant documentation suggesting that an onsite wetland (just under 4,000 SF in size) is isolated (ECA Review Exhibit No. 281). To date, it is our understanding that no determination of isolation has been made (by the City, Ecology or the Corps).

Analysis of available information suggests there are likely very few instances where isolated wetlands occur in shoreline jurisdiction. Even for the two identified wetlands that could potentially be isolated, no record of permitting agency concurrence exists.

4.5.2 Likely Impacts on Shoreline Ecological Functions

Based on ESA's experience, we believe there are likely very few isolated wetlands within shoreline jurisdiction. Even though there may be some small wetlands that lack permanent or intermittent surface water connection to the lakes, hydrologic connection through shallow groundwater and/or seasonal flooding is still very likely. Proposed amendment criteria requiring that any wetland not be adjacent to a riparian area further limit potential implications for the City's shoreline jurisdiction. Even if outside of the required shoreline setback and vegetation conservation required by the adopted SMP, it could be argued that any wetland within shoreline jurisdiction is still within or adjacent to the riparian area (see discussion of riparian functions and riparian widths provided in AMEC 2012c and 2012d). The effects of integrating this ECA amendment into the SMP are as follows:

- There are likely very few instances where the proposed new allowance for alteration could be applied, meaning the amendment would have minimal or negligible impacts on shoreline ecological functions;
- The allowance may create a tendency for applicants to claim that some wetlands are isolated and non-riparian, which could put an administrative and technical burden on the City to determine if wetlands in question are in fact isolated and not 'adjacent' to a riparian area.

Recommendations for SMP Integration

With consideration to the City's definition of 'isolated wetland', we recommend that any wetland occurring within shoreline jurisdiction be assumed as both 'associated' with the shoreline and 'adjacent' to a riparian area. This is due to: inherent proximity to the shoreline and location within an area (even if degraded) providing riparian functions to the shoreline (functions related to habitat, water quantity and water quality); likely regular connectivity and influence through shallow groundwater; and potential seasonal connection via surface water during periods of high flow. Our assessment has revealed limited instances where a case might be made that a small wetland in shoreline jurisdiction is isolated; however, we believe these circumstances to be rare (both in Sammamish and elsewhere). Further, we would suggest that

any of the identified wetlands, even if isolated per the ECA, are still located within or adjacent to riparian areas (of one of the City's SMP regulated lakes).

Given assumed association and position relative to riparian areas, we recommend that the proposed amendment for small, isolated wetlands between 1,000 and 4,000 SF in size not apply in shoreline jurisdiction. Given the extremely limited instances where this amendment could apply within the shoreline jurisdiction, however, it is not likely that incorporation into the SMP would result in a loss of shoreline ecological functions.

If the City chooses to integrate an allowance for alteration of small wetlands into the SMP, we have several recommendations to ensure that no net loss is achieved:

- Set clear guidance for necessary applicant documentation (to determine isolation) and consult with Ecology wetland staff early in such instances.
- Ensure appropriate mitigation for the limited instances where the amendment could apply. Even if not protected under federal law, isolated wetlands often perform many of the same important environmental functions as other wetlands, including recharging streams and aquifers, storing flood waters, filtering pollutants from water, and providing habitat for a host of plants and animals (Ecology et al. 2006, Sheldon et al. 2005). Under Growth Management Act required critical areas protections and requirements of the Shoreline Management Act, isolated wetlands still must be protected by local regulations.

Due to the potential ecological functions of small isolated wetlands, best available science indicates that no wetland should be completely exempt from review or regulation (AMEC 2012a). Guidance from Ecology (aimed at assisting small cities in Western Washington to update wetland regulations based on best available science) supports an allowance for isolated wetlands 1,000 SF or smaller (generally consistent with the adopted ECA) (Ecology 2010, revised October 2012). BAS documentation completed for the City notes other nearby jurisdictions with allowance up to 2,500 SF. There is extremely limited implication for application of any isolated wetland allowance (whether at 1,000, 2,500, or 4,000 SF) within shoreline jurisdiction; however, without a more detailed wetland inventory it is not possible to account for potential impacts. Any isolated wetland that is permanently altered within the shoreline area would likely require off-site mitigation (due to existing pattern of typically small parcels and likely limited opportunity to meet mitigation ratio requirements). As such, functions provided by these wetlands to the specific shoreline could be lost. If this amendment is integrated into the SMP, we recommend that off-site mitigation be required to occur within the shoreline jurisdiction of the same lake where the impact occurred. Currently, there is no mechanism for this to occur, but it is possible such a mechanism could be available in the future.

- Set the maximum wetland size and the maximum area of allowed impact to be the same. The proposed approach could result in 2,500 SF of impact to a hypothetical 3,000 square foot wetland, resulting in a 500 square foot isolated wetland and surrounding buffer. Such remnant wetlands would have even less function than before the impact,

and would be further disconnected from surrounding habitat and other critical areas by adjacent development. For these reasons, the Corps and Ecology generally consider such impacts to result in a full take of the wetland and compensatory mitigation must replace the entire wetland not just the impact area.

4.6 Buffer Reduction for Category III and IV Wetlands (3-19d)

The proposed amendment would allow buffer reduction to 15 feet for Category III and IV wetlands (whether isolated or not) less than 4,000 SF in size. This allowance would apply to such wetlands: scoring less than 15 points for habitat functions; not part of a wetland mosaic; mitigation is provided through enhancement of the wetland, the remaining on-site wetland buffer area, and/or other adjoining high value habitat areas; and no subsequent buffer reduction or averaging is allowed.

See [A-6](#) of Appendix A for redline/strikeout versions of proposed ECA amendments providing new allowances for impacts to small, isolated wetlands.

4.6.1 Anticipated New Development and Effects Resulting from Amendment

The policy intent of this amendment is to provide additional flexibility for property owners where small wetlands occur in close proximity to areas of potential development. Proposed allowances for Category III and IV wetland buffer reduction are not expected to result in new development. Moderate amounts of new and expanded residential development could occur closer to small Category III and IV wetlands.

The adopted ECA (as integrated into the adopted SMP) allows for 50% reduction of wetland buffers where specific ‘incentive options’ are provided to mitigate for reduction and improve buffer condition and functions. For low habitat value Category III wetlands and all Category IV wetlands, the standard buffer of 50 feet can be reduced to 25 feet (SMC 21A.50.290(8)), meaning that the proposed amendment would allow for 10 feet of additional buffer reduction.

There is no detailed inventory of small wetlands within shoreline jurisdiction. Although the City’s wetland inventory data does not show any wetlands less than 4,000 SF in size near Lake Sammamish, Pine Lake or Beaver Lake, site development records suggest that small wetlands do occur in these areas. While such small, low value wetlands may not be abundant, the proposed amendment will likely result in some new modification and residential development closer to wetland areas.

4.6.2 Likely Impacts on Shoreline Ecological Functions

The best available science review completed by the City documents importance of vegetated buffers adjacent to wetlands (AMEC 2012a). Buffers are a key management strategy for reducing impacts from adjacent uses and development. Buffers adjacent to wetlands commonly provide terrestrial habitat for numerous wildlife species (many of which are also dependent on the adjacent resource). Best available science also documents the ecological importance of small, lower value wetlands and supports the wetland rating system and standard buffer system currently used by the City (AMEC 2012a).

Allowances for buffer reduction, as included in the adopted ECA regulations, are common for most jurisdictions in Western Washington, and are supported by Ecology (Ecology 2010). Standard wetland buffer widths and allowances for reduction provided by adopted ECA regulations are consistent with Ecology guidance and best available science. Providing additional allowance for reduction below 25 feet, however, is not supported by science (Ecology 2010 and 2005, AMEC 2012a).

Recommendations for SMP Integration

Given inconsistency with best available science and Ecology guidance, and the unquantified scale of impacts to shoreline-associated wetlands that could result from the proposed amendment, we recommend that amendment 3-19d not be integrated into the SMP.

If the City chooses to integrate the proposed amendment into the SMP, we recommend integrating the allowance for additional Category III / IV buffer reduction into the existing buffer reduction section of the ECA (SMC 21A.50.290(8)). This section provides clear direction that all proposals for reduction must meet requirements for mitigation sequencing (including avoidance and minimization as first options). The buffer reduction requirements of SMC 21A.50.290(8), including currently proposed amendments, also specific reduction incentives designed to maximize ecological protection and benefits provided by required mitigation.

4.7 New Allowances for Development and Subdivision in the Erosion Hazard near Sensitive Water Bodies (EHNSWB) Overlay (4-15)

There are several aquatic resources in the City of Sammamish that are susceptible to impacts from erosion and sedimentation. Lake Sammamish, an important resource for recreation and wildlife habitat, is susceptible to water quality degradation due to erosive conditions along the western side of the City (King County 1994, AMEC 2012b). Erosion in these areas increase Lake Sammamish phosphorus levels, which can lead to excess algae growth, oxygen depletion, and associated impacts through eutrophication.

To manage erosion in areas near Lake Sammamish, the City established an “Erosion Hazard near Sensitive Water Bodies” Overlay (EHNSWB Overlay) as part of the ECA adoption in 2005⁹. The EHNSWB Overlay encompasses broad areas (generally 2,000 to 4,000 feet wide) to the east of the Lake Sammamish shoreline, but does not generally extend to the lake’s edge (Figure 1)¹⁰.

Existing ECA regulations treat ‘sloped portions’ of the EHNSWB Overlay as a ‘no-disturbance area’, with development generally limited to individual family homes, access drives, utility easements, and parks. For the remainder of EHNSWB Overlay areas (those areas contributing

⁹ The EHNSWB overlay actually re-located an existing zoning overlay regulation, originally adopted by King County as the Special District Overlay 190 (also known as SO-190)

¹⁰ Much of the EHNSWB Overlay area is also mapped as landslide and/or erosion hazard areas by the City. For areas that are mapped as erosion hazards or landslide hazards and are also part of the EHNSWB overlay, all applicable ECA standards shall apply (both under the adopted ECA and with proposed ECA amendments).

flow to the 'no-disturbance area'), subdivisions, short subdivisions, public institutions and commercial development can be developed provided that on-site stormwater infiltration is evaluated to determine feasibility and all runoff from newly constructed impervious surfaces is retained on site (some allowances for flexibility are provided where these provisions would limit a proposed subdivision or short subdivision from achieving 75 percent of the maximum net density as identified in Chapter 21A.25 SMC). The proposed amendments would not change the regulatory approach for areas contributing flow to the no-disturbance area within the EHNSWB Overlay.

The proposed ECA amendment more clearly defines the extent of the no-disturbance area and expectations for identification on a site-by-site basis by a qualified professional. The amendment allows development of single-family homes on existing lots within the EHNSWB Overlay 'no-disturbance area.' Existing ECA regulations limit such development to 2,000 SF of total impervious surface, or require runoff infiltration or other drainage improvements that provide a drainage outlet designed to limit the risk of landslide or erosion within the no-disturbance area (commonly use of a tightline to move infiltrated runoff below the no-disturbance area). The proposed amendment would maintain first preference for runoff infiltration, to the maximum extent technically feasible, and other drainage improvements to manage any remaining runoff. The amendment would also allow use of specific low impact development (LID) approaches (maintaining 65% forested open space and limiting gross site impervious surface to 10% of total site area) and stormwater discharge (volumes required to match average annual volumes discharged from the pre-developed forested site conditions).

Proposed ECA amendments #4-15d and #4-15g allow limited subdivision, clearing and development projects within the no-disturbance area by establishing a pilot program. Pilot program allowances would apply to the no-disturbance area portion of the EHNSWB Overlay. The proposed pilot program would allow a maximum of nine (9) total subdivisions:

- Three (3) subdivisions with direct discharges to Lake Sammamish using a tightline system; and
- Six (6) subdivisions without direct discharge to Lake Sammamish using one of two approaches to manage runoff (three of these six subdivisions would have to be short subdivisions):
 - Proposals meeting specific and development and stormwater management LID approaches; or
 - For project sites less than 5 acres, proposals relying on connection to an existing, off-site manmade conveyance to direct runoff to Lake Sammamish.

Criteria are provided for pilot projects that use direct discharge via a new tightline system, for those that would require connection to an existing off-site, manmade conveyance, and for those where a LID approach is proposed.

See [A-7](#) Appendix A for redline/strikeout versions of proposed ECA amendments providing new allowances for development and subdivision within the EHNSWB Overlay.

4.7.1 Anticipated New Development and Effects Resulting from Amendment

The proposed EHNSWB Overlay amendments would likely result in new residential development on existing lots and new residential subdivision. This development would primarily occur in areas immediately to the east of Lake Sammamish shoreline jurisdiction. These areas are established as the no-disturbance area due to slopes and documented potential for erosion (mapped erosion and landslide hazard area) and concerns about phosphorus loading to downstream aquatic resources. Without careful planning and management of stormwater runoff and associated downstream effects, newly allowed development could degrade water quality conditions within Lake Sammamish as well as susceptible reaches of tributary streams.

The proposed amendment (for single-family development resulting in over 2,000 SF of impervious surface, and for pilot program subdivision) includes provisions that are intended to ensure that potential downstream erosion impacts are avoided and minimized. The intent is that such impacts would be addressed through land use and stormwater management approaches prescribed in the amendments.

New Development Using Direct Discharge or Other Approaches to Convey Runoff Downslope of the No-Disturbance Zone

There is minimal potential for erosion and water quality impacts from new residential development and pilot project subdivisions that would tightline discharges to Lake Sammamish. The lake is listed as a receiving water body under the stormwater manual adopted by the City, so developments discharging to the lake are not required to provide flow control. Using a tightline approach bypasses erosion that could occur in downstream areas between the development site and the shoreline. As long as runoff from new pollution generating impervious surfaces is treated as required, potential development using a tightline approach, including the three potential pilot projects, is not expected to have a significant impact on Lake Sammamish water quality.

Similarly, the second development category under the pilot program (allowing subdivisions or short subdivisions on project sites less than 5 acres where runoff would be routed via connection to an existing off-site, manmade conveyance) appears to have limited potential to cause erosion and water quality impairment to downstream resources. Such pilot projects would have to be approved for water quality treatment (including specifications for enhanced phosphorus removal), Level 3 flow control or equivalent, and evaluation of downstream impacts (including analysis consistent with adopted surface water design manual guidance for all open channel elements of the off-site conveyance). While this approach does not appear significantly different than the analysis of downstream impacts that would be required per adopted stormwater guidelines for any development proposal, resultant development would not be expected to have a significant impact on Lake Sammamish water quality.

New Development Using Low Impact Development Approaches to Manage Stormwater Runoff

For the remaining category of pilot projects that could occur under the proposed amendment, LID provisions for both land development (maintaining 65% forested open space and limiting

gross site impervious surface to 10% of total site area) and stormwater management are required. These criteria parallel the proposed allowance for more than 2,000 SF of impervious surface on an existing residential lot. In addition to the 65% forested open space / 10% impervious surface requirements for land development, the amendments (#4-15e and #4-15g) would require that runoff discharge volumes match average annual volumes discharged from the pre-developed forested site conditions. The criteria place the burden on the applicant to analyze soils, hydrology and other features of the site and surrounding area and demonstrate engineering feasibility before City approval.

Stormwater infiltration in areas of steep, erodible soils is typically very challenging. The areas in question include the Panhandle and Monohon drainages – areas which were identified in the East Lake Sammamish Basin and Nonpoint Action Plan as having *'the steepest slopes in the basin and erosive soils, and have extensive urban development in their headwaters'* (King County 1994). This condition applies throughout much of the EHNSWB Overlay 'no disturbance' zones. Even if on-site soils meet the infiltration requirements in the adopted stormwater manual, infiltrated water could re-emerge relatively quickly in downstream areas (hydraulic gradient resulting in lateral flow), which could result in erosion or landslides. Even with the criteria and limits in the proposed ECA amendment, this type of development in the EHNSWB Overlay could lead to water quality degradation in Lake Sammamish and the reaches of tributary streams within shoreline jurisdiction.

City staff have indicated that it is not the intention of proposed amendments to encourage use of stormwater infiltration within the no-disturbance area (personal communication with Maxim, 2013). Other approaches, including rainwater harvesting, to reduce post-development runoff, may be proposed and considered by the City. While such approaches may be valid and warrant further consideration, the scale of development (applicable to existing residential lots greater than a half acre in size) and subdivision (allowed through the pilot program) suggests that some 'unharvested' runoff from developed surfaces is likely.

In addition, allowances for site clearing would also likely result in increased runoff – even from pervious surfaces. In general, total site runoff increases by approximately 20% relative to the area of forest loss due to loss of evapo-transpiration processes (Figure 2). Even if residential development on existing lots and pilot development proposals limit forest removal to 35% of overall site area, this would still result in an increase in the total volume of runoff across the site.

While it may be possible to design stormwater infrastructure to match average annual discharge volumes from the pre-development condition, there is no requirement to address the runoff dynamics that would occur over the course of any given year (matching annual peak flow volumes and durations, for example).

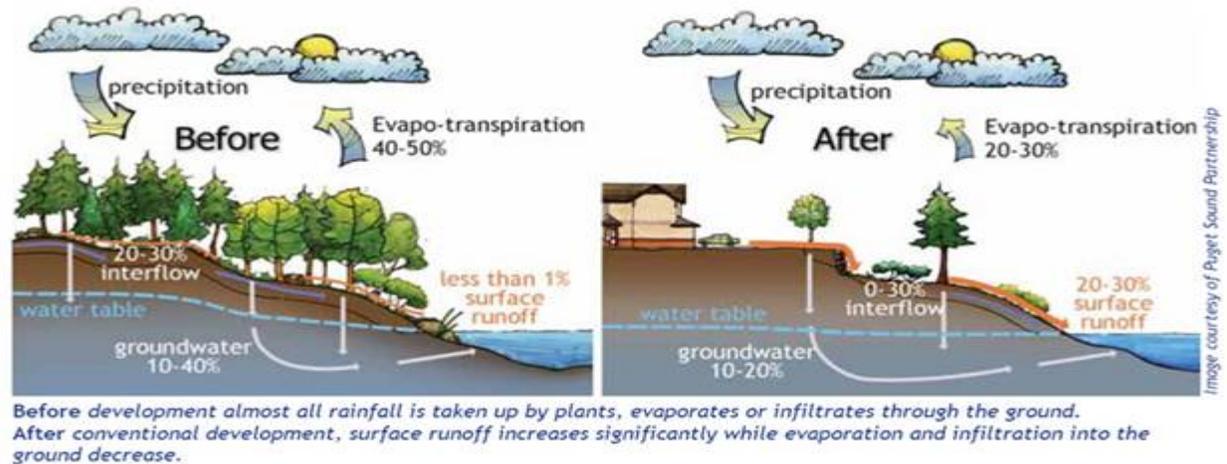


Figure 2. Typical water cycle before and after development. Before development almost all rainfall is taken up by plants, evaporates or infiltrates through the ground. Loss of forest cover increases surface runoff significantly due to loss of evapo-transpiration processes (courtesy of Puget Sound Partnership).

The proposed amendment establishes a system for water quality monitoring prior to, during, immediately following, and after construction for any subdivision / development that occurs as part of the pilot program. This system is intended to allow the City to assess the success of land use and stormwater management criteria included in the pilot program. For any allowed pilot project, monitoring will continue for 5 years after the last home is built. It is unclear if the proposed three year period of the pilot program will provide enough information to assess the results before potential pressure to extend (and potentially expand) pilot program as the program's sunset date approaches. We also note that there is no requirement for a financial guarantee to cover all costs of implementing the approved monitoring program.

Within shoreline jurisdiction, new development associated with the proposed amendment would largely be limited to new tightline conveyance corridors and discharge points (new stormwater outfalls on the Lake Sammamish shoreline). Consistent with the pilot program's cap of three subdivisions that could use a tightline approach, shoreline impacts and new shoreline modifications associated with permitted stormwater outfalls could only occur on a maximum of three sites.

The City is aware of several properties in the no-disturbance area of the EHNSWB Overlay that may subdivide and develop through the proposed pilot program (personal communication with Maxim, 2013). Of these, two are located near the shoreline and could potentially propose tightline conveyance and a new stormwater outfall (see Figure 3). Riparian alteration and shoreline modification at the potential north end subdivision site would occur in one of the most intact areas of the City's Lake Sammamish shoreline; however consistent with pilot program requirements and requirements in the adopted SMP for shoreline modification and development, mitigation would be required (including approaches for impact avoidance and minimization to the greatest extent feasible).



Figure 3. Oblique image of north-end site for potential subdivision through the EHNSWB Overlay – pilot program; tight-line conveyance and stormwater outfall would require alteration of the Lake Sammamish shoreline setback and vegetation management area, and modification of the shoreline.

4.7.2 Likely Impacts on Shoreline Ecological Functions

For developments that could be allowed using a discharge (direct or via existing, manmade conveyance) approach, adequate criteria are provided to protect downstream water quality. These developments would also still have to meet requirements of SMC 21A.50.220 (Erosion Hazards) and 21A.50.260 (Landslide Hazards). The proposed pilot program also limits the total number of projects that could occur (nine total) and includes a sunset provision that will end the pilot program three years after the effective date of City adoption.

Allowances for single-family development on existing lots and pilot program subdivisions utilizing LID provisions for both land development and stormwater management could result in cumulative impacts to shoreline ecological functions. All other aspects of ECA amendments for the EHNSWB Overlay are not likely to result in cumulative impacts to shoreline ecological functions.

By allowing subdivision and associated development that proposes on-site stormwater infiltration in the no-disturbance zone, the proposed ECA amendment could likely result in downslope erosion and water quality degradation in Lake Sammamish and tributary streams. The City's BAS review for the EHNSWB Overlay suggested the following approach for new subdivision and development in the *contributing zones* of the EHNSWB Overlay:

In AMEC's experience, when infiltration is not feasible due to the site soils and/or geologic conditions, conveying stormwater via a continuous storm pipe downslope to a point where there is no erosion hazard area downstream from the discharge, and discharging at flow durations matching pre-developed forested land cover and providing stream erosion protection (King County Level 2 flow control), would constitute an outlet designed using the best available science. (AMEC 2012b)

This recommendation is made for portions of the overlay that are likely less sensitive to erosion – and likely more suitable for onsite infiltration – than the no-disturbance zones.

Recommendations for SMP Integration

To minimize potential impacts to shoreline ecological functions, one option is to limit development and subdivision within the no-disturbance area to those projects that can provide conveyance to Lake Sammamish through a method that bypasses areas of erosion hazard.

The potential for cumulative impacts would also be reduced if the amendment included requirements for a financial guarantee to cover all costs of implementing the approved monitoring program.

Impacts within shoreline jurisdiction associated with new stormwater conveyance and discharge facilities would be limited to a maximum of three developments. Staff has only been informed of two potential development sites, so it is possible that fewer than three could occur in the three year period before pilot program sunset. Riparian alteration and shoreline modification at a potential north end subdivision site would occur in one of the most intact areas of the City's Lake Sammamish shoreline (Figure 3). That said, some existing riparian and shoreline degradation is present even in this location.

Any new stormwater facilities would have to be consistent with requirements of the City's adopted SMP, including requirements for avoidance and minimization of impacts to the extent feasible and compensatory mitigation. Surface water management facilities (including the conveyance pipe, energy dissipating structure, and outlet structure that would likely be required for any new stormwater outfall) are allowed by SMC 25.07.110, provided that 'the functions of the lake and related VEA are not adversely affected or are appropriately mitigated'. To ensure that cumulative impacts do not occur from allowed stormwater facilities, the ECA amendment could be revised to require shoreline bank and vegetation enhancement area mitigation (consistent with SMC 25.07) as criteria pilot project approval.

5. INTEGRATED ECA PROVISIONS AND NO NET LOSS

As with the 2010 CIA, this analysis was guided by the three factors identified in the Ecology guidelines for evaluating cumulative impacts and no net loss:

- Current circumstances affecting the shorelines and relevant natural processes;
- Reasonably foreseeable future development and use of the shoreline; and
- Beneficial effects of any established regulatory programs under other local, state, and federal laws.

Existing shoreline conditions and relevant natural processes are consistent with those documented in the 2010 CIA. Likewise, reasonably foreseeable future shoreline development and use is generally the same.

The majority of proposed ECA amendments, once adopted and integrated into the SMP, will maintain protection of shoreline ecological functions. Several amendments, however, would likely result in new development or influence how anticipated development occurs; these amendments could negatively affect shoreline ecological functions.

Several proposed amendments would shift approaches to critical areas mitigation—namely by revising the wetland mitigation ratios, increasing requirements for developments in stream buffers, and allowing for off-site compensatory mitigation options through use of approved fee-in-lieu programs. Wetland protections are amended to ensure that wetlands in a mosaic landscape are assessed and protected as one wetland unit. The amendment for management of fish and wildlife habitat corridors would tie identification and protection to existing habitat conditions (as opposed to an outdated habitat corridor map). These amendments would maintain or improve protection of shoreline ecological functions.

Several ECA amendments would shift how and where some new development occurs. Proposed allowances for expansion of existing buildings could result in additional modification of wetland and stream buffers. New development could occur closer to Category III and IV wetlands, or potentially result in fill of small, isolated wetlands with little habitat value (likely very few instances in shoreline jurisdiction where the latter could occur). These new allowances could affect wetland and stream functions within shoreline jurisdiction.

The only amendments that could result in the creation of substantial amounts of additional lots are those proposed for the Erosion Hazard Near Sensitive Waterbodies Overlay (EHNSWB Overlay) – specifically, new allowances for residential development and subdivision within the no-disturbance area. Expected new development resulting from EHNSWB Overlay amendments would occur primarily outside of shoreline jurisdiction; however could result in downslope erosion and impacts to Lake Sammamish (and tributary stream) water quality.

Table 5 summarizes the proposed major ECA amendments and provides recommendations for SMP integration necessary to ensure no net loss of shoreline ecological functions.

Table 5. Proposed ‘major’ ECA amendments, summary of implications for shoreline ecological functions, and recommendations to ensure no net loss.

ECA Amendment Number	Summary of Major Amendment	Summary of Implications for Shoreline Ecological Functions	Recommended Changes to Achieve No Net Loss
2-8b.	Allows fee-in-lieu mitigation for impacts to streams	Neutral or Beneficial, especially with use of mitigation ‘receiving’ sites within City’s shoreline jurisdiction.	No changes needed
2-13c.	Alternative wildlife protection approach for fish and wildlife habitat corridors - requires site specific analysis of wildlife habitats as opposed to reliance on outdated King County habitats map.	Beneficial, especially for habitat functions.	No changes needed
2-14c.	New allowances for modification of an addition to existing structures within critical areas buffers – allows for new construction and expansion of structures within some ECA buffers which could weaken buffer protection.	Potentially negative to habitat, water quality, and hydrologic functions associated with wetland and stream buffer impacts.	Maintain current allowances provided by SMC 25.08.100 and do not integrate proposed amendment #2-14c into the SMP. OR Provide the following changes to the amendment: <ul style="list-style-type: none"> • Limit the allowance to existing legally created single detached dwelling units and associated impervious surfaces; • Provide additional criteria for avoidance and minimization of buffer encroachment; • Remove allowance for single detached dwelling unit expansion into a buffer when there is ‘an intervening building(s) on a perpendicular line’; and • Specify clear expectations for buffer mitigation where modification is allowed.
3-3b.	Allows fee-in-lieu mitigation for allowed impacts to wetlands	Neutral or Beneficial, especially with use of	No changes needed

ECA Amendment Number	Summary of Major Amendment	Summary of Implications for Shoreline Ecological Functions	Recommended Changes to Achieve No Net Loss
		mitigation ‘receiving’ sites within City’s shoreline jurisdiction.	
3-6.	Revised wetland mitigation ratios – requires mitigation ratios to be based upon different types of wetland mitigation (e.g., creation, rehabilitation, etc). Clarifies expectations for wetland mitigation and establishes consistency with state and federal regulatory guidelines.	Beneficial, especially for habitat and water quality functions.	No changes needed
3-7b.	Wetland Mosaic – when applicable, requires that the City evaluate a wetland’s status as part of a mosaic of wetland features when classifying the wetland and applying ECA regulations (consistent with state and federal regulatory guidelines).	Beneficial, with limited implication in shoreline jurisdiction.	No changes needed
3-19	Allowance for Alteration of Small, Isolated Wetlands – Allows isolated wetlands less than 4,000 SF to be filled without first avoiding the impact	Potentially negative to habitat, water quality, and hydrologic functions associated with small wetlands in shoreline jurisdiction.	<p>Any wetland occurring within shoreline jurisdiction should be assumed as both ‘associated’ with the shoreline and ‘adjacent’ to a riparian area. Given assumed association and position relative to riparian areas, we recommend that the proposed amendment for small, isolated wetlands between 1,000 and 4,000 square feet in size not apply in shoreline jurisdiction.</p> <p><i>If the City chooses to integrate the proposed allowance into the SMP, we recommend the following:</i></p> <ul style="list-style-type: none"> • Set clear guidance for necessary applicant documentation (to determine isolation) and consult with Ecology wetland staff early in such instances; • Ensure appropriate compensatory mitigation for the limited instances where the amendment could apply; • Set the maximum wetland size for the allowance and the

ECA Amendment Number	Summary of Major Amendment	Summary of Implications for Shoreline Ecological Functions	Recommended Changes to Achieve No Net Loss
	<p>15 Foot Buffer for Category III and IV Wetlands 4,000 square feet or less in size - only allowed when specific criteria apply (less than 15 points for habitat; not part of a wetland mosaic; mitigation as enhancement provided for remaining buffer)</p>	<p>Potentially negative to habitat, water quality, and hydrologic functions associated with wetland and stream buffer impacts.</p>	<p>maximum area of allowed impact to be the same.</p> <p>Given inconsistency with best available science and Ecology guidance, and the un quantified scale of impacts to shoreline-associated wetlands that could result from the proposed amendment, we recommend that amendment 3-19d not be integrated into the SMP.</p> <p>If the City chooses to integrate the proposed allowance into the SMP, the amendment should be removed from section 21A.50.230 (Wetlands – Development Flexibilities) and allowances for additional Category III and IV wetland buffer reduction should be integrated directly into existing SMC 21A.50.290(8) (Wetlands – Development standards, Buffer Reduction).</p>
4-15	<p>New allowances for development in the no-disturbance area of the Erosion Hazard Near Sensitive Water Bodies (EHNSWB) Overlay.</p> <p>Item 4-15e provides new allowances for single family home construction and modification on existing lots in the EHNSWB Overlay no-disturbance area; allows for an expansion in the amount of impervious surface on a site if no increase in stormwater volume will result.</p> <p>Item 4-15g authorizes subdivisions in the no-disturbance area of the EHNSWB Overlay subject to a pilot program; criteria are provided directing how subdivision would manage runoff (either through a direct discharge / tightline approach, or through use of LID approaches for land development and stormwater management).</p>	<p>Likely negative to Lake Sammamish water quality and associated functions supporting water quality in the lake and tributary streams.</p>	<p>Limit development and subdivision allowed within the no-disturbance area to those projects that can provide conveyance to Lake Sammamish through a method that bypasses areas of erosion hazard.</p> <p>Comprehensive monitoring requirements should include a financial guarantee to cover all costs of implementing the approved monitoring program.</p> <p>Require specific shoreline and vegetation enhancement area mitigation (consistent with SMC 25.07) as criteria for pilot project approval where proposing direct discharge to Lake Sammamish (and a new outfall structure).</p>

ECA Amendment Number	Summary of Major Amendment	Summary of Implications for Shoreline Ecological Functions	Recommended Changes to Achieve No Net Loss
	<p>Item 4-15f would expand the pilot program under 4-15g to allow projects that incorporate Low Impact Development techniques and level 3 flow control into their design to subdivide subject to the pilot program. Stormwater would be handled via existing man-made conveyances (e.g. road side ditches).</p>		

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APPENDIX A.

EXCERPTS OF PLANNING COMMISSION RECOMMENDED ECA FOR MAJOR AMMENDMENT TOPICS

A-1 Fee-In-Lieu Mitigation for Streams and Wetlands (ECA Amendments #2-8b and #3-3b)

Proposed ECA amendments allowing fee In-lieu mitigation for streams and wetlands:

21A.50.140 Mitigation, maintenance, monitoring and contingency.

(1) When mitigation is required by this chapter to compensate for adverse impacts, unless otherwise provided, mitigation, maintenance, monitoring measures and contingency plans shall be in place to protect critical areas and buffers from alterations occurring on the development proposal site.

(2) Where monitoring reveals a significant deviation from predicted impacts or a failure of mitigation or maintenance measures, the applicant shall be responsible for appropriate corrective action which, when approved, shall be subject to further monitoring.

(3) Mitigation shall be in-kind and on-site where feasible and sufficient to maintain critical area and buffer functions, and where applicable to prevent risk from a hazard posed by a critical area.

(4) The city may approve off-site mitigation if an applicant demonstrates that:

(a) It is not feasible to mitigate on the development proposal site; and

(b) The off-site mitigation will achieve equivalent or greater hydrological, water quality and wetland or aquatic area habitat functions.

(5) When off-site mitigation is authorized, the city shall give priority to locations in the following order of preference:

(a) Within the same drainage subbasin; and

(b) Within the city limits;

(c) Within the boundaries of an approved fee-in-lieu mitigation program.

21A.50.145 Mitigation plan requirements.

When mitigation is required, the applicant shall submit, for approval by the City of Sammamish, a mitigation plan as part of, or in addition to, the critical areas study. The mitigation plan shall include, or be accompanied by a report with, the following information, as determined to be applicable by the director:

(9) Fee in lieu program. If fee-in lieu mitigation is proposed, a critical areas study shall be supplied that demonstrates how proposed impacts and mitigation meet the requirements of SMC 21A.50.140 and 21A.50.310 or 21A.50.350, whichever is applicable, and also the specific requirements of the fee-in-lieu mitigation program to be utilized.

21A.50.310 Wetlands – Mitigation requirements and 21A.50.350 Streams – Mitigation requirements.

When mitigation for wetland and/or wetland buffer impacts *OR* for stream or stream buffer impacts is required, mitigation shall meet the requirements listed in SMC [21A.50.145](#) in addition to the following supplementary requirements:

(4 [*Wetlands*] / 2 [*Streams*]) Mitigation Type and Location. Mitigation actions shall be in-kind and conducted within the same sub-basin and on the same site as the alteration except when the following apply:

(a) There are no reasonable on-site opportunities for mitigation, or on-site opportunities do not have a high likelihood of success due to development pressures, adjacent land uses, or on-site buffers or connectivity are inadequate;

(b) Off-site mitigation has a greater likelihood of providing equal or improved wetland functions than the impacted wetland; and

(c) Off-site locations shall be in the same sub-basin have been identified and evaluated in the following order of preference:-

(i) Approved fee-in-lieu or mitigation bank program sites within the city limits in accordance with SMC 21A.50.315;

(ii) Approved fee-in-lieu or mitigation bank program sites within the WRIA 8 in accordance with SMC 21A.50.315.

(3 [Streams only]) Fee-In-Lieu Stream Mitigation Program. Fee-in-lieu mitigation may be authorized for streams, subject to the avoidance sequence requirements– and mitigation measures of this title, and the approval of a program by the city, to be used in the following order of preference:

(a) A city approved program that utilizes receiving mitigation sites within the city of Sammamish.

(b) The King County Mitigation Reserves Program, or other approved program that gives priority to sites within the same sub-basin and/or a pre-defined service area that includes the city of Sammamish.

21A.50.315 Wetlands – ~~Alternative Mitigation banking.~~

(1) Wetland banking:

(a) Credits from a wetland mitigation bank may be approved for use as compensation for unavoidable impacts to wetlands when:

(i) Criteria in SMC 21A.50.310(4) are met;

(2) Fee-in-lieu Mitigation:-

(a) Fee-in-lieu mitigation may be approved for use as compensation for approved impacts to wetlands, when:

(i) Criteria in SMC 21A.50.310(4) are met;

(ii) The fee-in-lieu mitigation program is state certified;

(iii) The department determines that the wetland fee-in-lieu mitigation provides appropriate compensation for the authorized impacts;

(iv) The proposed use of fee-in-lieu mitigation is consistent with the terms and conditions of the fee-in-lieu mitigation program; and

(v) The compensatory mitigation agreement occurs in advance of authorized impacts.

(b) Fee-in-lieu mitigation may be authorized in the city based upon the following order of preference:

(i) A city approved program that utilizes receiving mitigation sites within the city of Sammamish.

(ii) The King County Mitigation Reserves Program, or other approved program that gives priority to sites within the same sub-basin and/or a pre-defined service area that includes the city of Sammamish.

A-2 Alternative Wildlife Protection Approach for Fish and Wildlife Habitat Corridors (2-13)

Proposed ECA amendments updating approach for designation and protection of Fish and wildlife habitat corridors:

21A.50.325 Fish and wildlife habitat conservation areas – Development standards.

A development proposal that includes ~~alteration of~~ a fish and wildlife habitat conservation area or buffer shall meet the following requirements:

(1) When appropriate due to the type of habitat or species present or the project area conditions, the director may require a critical areas study that includes a habitat management plan consistent with the latest guidance from the Department of Fish and Wildlife. If the habitat conservation area is also classified as a stream, lake, pond or a wetland, then the stream, lake, pond or wetland protection standards shall apply and habitat management shall be addressed as part of the stream, lake, pond or wetland review; provided, that the City may impose additional requirements when necessary to provide for protection of the habitat conservation areas consistent with this chapter.

(2) The director may require the following site- and proposal-related information with the critical areas study:

(e) When appropriate, information from the Washington Department of Fish and Wildlife’s Fish and Wildlife’s Backyard Wildlife Sanctuary Program shall be included.

(3) General Requirements. Habitat conservation areas that are lakes shall be governed by the requirements of the Sammamish Shoreline Master program. Other habitat conservation areas are subject to the following provisions:

(b) Where applicable, a fish and wildlife habitat corridor required in 21A.50.327.

(c) [NO CHANGE]

(d) In addition to the provisions of SMC 21A.50.060, removal of any native vegetation or woody debris from the habitat conservation area may be allowed only as part of an approved habitat management plan, critical areas study, and/or alteration plan.

21A.50.327 Fish and wWildlife habitat corridors.

~~Habitat~~ On development proposal sites that contain Type F or Np streams and/or wetlands with a high habitat score greater than or equal to 29, that are also located within 200 feet of an on-site or off-site Type F or Np stream and/or wetland with a high habitat score greater than or equal to 29, ~~fwcorridors as defined in 21A.15.467~~ a fish and wildlife habitat corridor shall be set aside and protected ~~for preserving connections between habitats along the designated wildlife habitat network~~ as follows:

~~(1) Habitat corridors shall be identified and protected in one of the following ways:~~

(1) ~~(a)~~ Subdivisions and short subdivisions shall either place the corridor in a contiguous permanent open space tract with all developable lots sited on the remaining portion of the project site, or shall design the lots so that conservation easements on individual lots can form a contiguous easement covering the corridor;

(2) ~~(b)~~ Individual lots shall place the corridor in a conservation easement.

~~(2)(3)~~ The fish and wildlife habitat corridor shall be sited on the property in order to meet the following

conditions:

(a) Forms one contiguous tract that connects on-site high value habitat areas to other on-site or off-site high value habitat areas. that enters and exits the property at the points the designated wildlife habitat network crosses the property boundary;

(b) New development proposals shall provide a minimum fish and wildlife habitat corridor width of 300 feet or a corridor width that is consistent with an approved habitat management plan. Maintains a width, wherever possible, of 300 feet. The network width shall not be less than 150 feet wide at any point;

(c) In addition to the provisions of SMC 21A.50.060, development proposals on sites constrained by a fish and wildlife habitat corridor and where development already exists, shall maintain a minimum fish and wildlife habitat corridor width of 300 feet unless through an approved habitat management plan it can be shown that a lesser habitat corridor width supports and maintains the corridor's function and value; and

(~~e~~) Be contiguous with and may include sensitive-critical area tracts ~~and their buffers~~ and open space tracts or wooded areas on adjacent properties, if present; and

(e) The director may modify corridor widths based on supporting conditions from an approved habitat management plan.

(3) When feasible, the fish and wildlife habitat corridor shall be sited on the property in order to meet the following conditions:

(a) Connect isolated critical areas or habitat; and

(b) Connect with other fish and wildlife habitat corridors, open space tracts or wooded areas on adjacent properties, if present.

~~(4) The wildlife corridor tract shall be permanently marked consistent with the methods contained in SMC 21A.50.170. Conservation easements are exempt from the permanent marking requirement.~~

~~(54)~~ [NO CHANGE]

~~(55)~~ Clearing within the wildlife corridor contained in a tract or tracts shall be limited to that allowed by the management plan or as otherwise allowed by this chapter. No clearing, including the removal of woody debris, shall be allowed within a wildlife corridor contained within a conservation easement on individual lots, unless the property owner has an approved management plan.

~~(66)~~ A homeowners' association or other entity capable of long-term maintenance and operation shall be established to monitor and assure compliance with the management plan. The association shall provide homeowners with information on Washington Department of Fish and Wildlife's Backyard Wildlife Sanctuary Program.

~~(89)~~ and ~~(910)~~ [NO CHANGE]

~~(110)~~ Low impact uses and activities which are consistent with the purpose and function of the habitat corridor and do not detract from its integrity may be permitted within the corridor depending on the sensitivity of the habitat area. Examples of uses and activities which may be permitted in appropriate cases include trails that are pervious, viewing platforms, storm water management facilities such as grass-lined swales, utility easements and other similar uses, or activities otherwise described and approved by the Washington Department of Fish and Wildlife and activities; provided, that any impacts to the corridor resulting from such permitted facilities shall be fully mitigated.

(1~~2~~) [NO CHANGE]

A-3 Proposed Buffer Allowances for Existing Development within Critical Areas Buffers (2-14c)

Proposed ECA amendments allowing:

21A.50.060 Allowances for Existing Urban Development and Other Uses ~~Partial exemptions—Critical areas.~~

The following developments, activities, and uses are allowed in critical areas and associated buffers and building setbacks as specified in the following subsections, provided such activities are otherwise consistent with this program and other applicable regulations. The Director may apply conditions to an underlying permit or approval to ensure that the activities are consistent with the provisions of this chapter.

(1) Maintenance of Existing Improvements. Existing single detached dwelling unit, other structures, landscaping, and other existing uses that do not meet the requirements of this chapter, which were legally established according to the regulations in place at their time of establishment may be maintained and no critical areas study or review is required.

(2) Modifications of Existing Improvements. Addition, expansion, reconstruction or revision of existing building(s) or other structures is subject to the following:

a) Modification or replacement. Structural modification or replacement of legally established structures that do not meet the building setback or buffer requirements for wetlands, streams, Fish and Wildlife Habitat Conservation Area, wildlife habitat corridor, or landslide hazard areas is allowed if the modification, replacement or related activity does not increase the existing footprint of the structure lying within the critical area, buffer or building setback area, and there is no increased risk to life or property.

b) Expansions. Structural modification of, addition to, or replacement of legally created building(s) and associated impervious surfaces that do not meet the building setback or buffer requirements for wetlands, streams, Fish and Wildlife Habitat Conservation Area, wildlife habitat corridor, or landslide hazard areas are allowed a one-time up to 1,000 square foot increase in the existing total footprint of the building(s) and associated impervious surface areas lying within the buffer or building setback subject to the following:

1. If the existing legally created building(s) and associated impervious surfaces are located within the building setback or buffer required for a landslide hazard area, a critical areas study must be supplied and approved by the City that demonstrates that there will be no increased risk to life or property by the proposed footprint expansion;

2. If the existing legally created building(s) and associated impervious surfaces are located over or within a wetland, stream, Fish and Wildlife Habitat Conservation Area, wildlife habitat corridor, or landslide hazard area, no further expansion within the wetland, stream, Fish and Wildlife Habitat Conservation Area, wildlife habitat corridor, or landslide hazard area is allowed; and

3. If an existing legally created single detached dwelling unit and associated impervious surfaces are located within the building setback or buffer for a stream or wetland:

a. No portion of the modification, addition or replacement may be located closer to the critical area than the nearest extent of the existing single detached

dwelling unit, except as provided under subsection “b.” below.

b. When there is an intervening building(s) on a perpendicular line in between the subject critical area(s) and a single detached dwelling unit that is proposed to be modified, added to, or replaced, the modification, addition or replacement may be located closer to the critical area, provided no portion of the modification, addition or replacement is located closer than 50-feet to the critical area.

c. Modifications, additions, or replacements authorized under subsections “a.” and “b.” above, shall meet the following criteria:

i. A critical areas study approved by the City demonstrates a net improvement in hydrologic and habitat values to the subject critical area(s) through restoration of degraded critical areas and/or buffer or through provision of additional vegetated buffer; and

ii. Mitigation of impacts to disturbed critical areas or buffers is provided in accordance with this chapter.

(3) Revisions to existing legally-established landscaping are allowed subject to the following:

a) The landscaped area shall not be increased within the critical area or buffer; and,

b) Landscaping features may be revised or replaced with similar features or features with less impact to the critical area or buffer, such that the remaining functions of the critical area and/or buffer are maintained or improved (e.g. plant material replaced with alternate plant material, hardscape replaced with alternate hardscape, hardscape replaced with plant material, etc.); and,

c) Revisions authorized under this section shall not require a critical areas study.

(4) Conservation, Preservation, Restoration and/or Enhancement is allowed within critical areas or buffers subject to the following:

a) Conservation and preservation of soil, water, vegetation, and other fish and wildlife habitat is allowed where it does not include alteration of the location, size, dimensions or functions of an existing critical area or buffer.

b) Restoration and enhancement of critical areas or buffers is allowed provided that actions do not alter the location, dimensions or size of the critical area or buffer; that actions improve and do not reduce the existing quality or functions of the critical areas or buffers; and that actions are implemented according to a restoration or enhancement plan that has been approved by the City of Sammamish.

(5) Select Vegetation Removal Activities.

a) Removal of non-native or invasive Washington State and/or King County listed noxious weeds in an area of up to 2,500 square feet within a critical area or buffer is allowed with no permit requirement if the following provisions are met:

i. The plants are removed using hand labor and/or light equipment;

ii. Soil disturbance is minimized and no filling or modification of soil contours occurs;

iii. Water quality is protected and no modification of hydrology patterns within the critical

area or buffer is permitted;

iv. Native plants are protected from removal or damage;

v. Appropriate erosion-control measures are used;

vi. The area is replanted with a like kind and density of native vegetation following non-native plant removal. For example, if dense non-native blackberry is removed, at a minimum, dense native shrubs must be replanted following blackberry removal, though native trees and groundcover could also be included and are encouraged if desired; and

vii. Removal of non-native or invasive plants authorized under this subsection shall not require a critical areas study.

b) For removal of non-native vegetation in an area greater than 2,500 square feet, a clearing and grading permit is required and must be accompanied by a native plant restoration plan in accordance with applicable provisions of this chapter. A critical areas study may be required by the director.

(6) Reconstruction, replacement, or expansion of the exterior footprint of an existing, legally established structure not meeting current regulations is allowed; provided, that the addition or reconstruction does not increase the noncompliance to current regulations. A critical areas study may be required by the director.

a) Replacement may be allowed in a different location not meeting current regulations if a determination is made by the City that the new location results in less impact to environmental critical area functions and values than replacement in the existing footprint.

b) Existing structures that were legally established but which are not meeting current regulations may be maintained, reconstructed, or repaired; provided, that the maintenance / reconstruction / repair does not increase the extent of noncompliance with current regulations by encroaching upon or extending into the environmental critical areas or other area where new construction or use would not be allowed.

c) If a structure not meeting current regulations is damaged by fire, explosion, or other casualty and/or natural disaster or is otherwise demolished, it may be reconstructed to match the footprint that existed immediately prior to the time the damage occurred or in accordance with subsection (6)a) of this section; provided, that all of the following criteria are met:

(i) The owner(s) submit a complete application within 24 months of the date the damage occurred; and

(ii) All permits are issued within two years of initial submittal of the complete application, and the restoration is completed within two years of permit issuance. This period may be extended for one additional year by the director if the applicant has submitted the applications necessary to establish the use or activity and has provided written justification for the extension.

d) A structure not meeting current regulations that is moved outside the existing footprint must be brought into conformance with this chapter, except as allowed by subsection (6)(a) of this section.

(1) The following developments, activities and uses are exempt from the review process of this chapter, except for the notice on title provisions, SMC 21A.50.180 and 21A.50.190, and the frequently flooded areas provisions, SMC 21A.50.230, and provided such exempt activities are otherwise consistent with the purpose of this chapter and

~~other applicable regulations. The director may apply conditions to an underlying permit or approval to ensure that the activities are consistent with the provisions of this chapter.~~

~~(a) Structural modification of, addition to or replacement of existing legally created structures, except single detached residences in existence before November 27, 1990, which do not meet the building setback or buffer requirements for wetlands, streams, ponds or landslide hazard areas if the modification, addition, replacement or related activity does not increase the existing footprint of the structure lying within the above-described building setback area, critical area or buffer.~~

~~(b) Structural modification of, addition to or replacement of legally created single detached residences and improvements constructed on existing associated legally created impervious surfaces in existence before November 27, 1990, which do not meet the building setback or buffer requirements for wetlands, streams, lakes, ponds or landslide hazard areas if the modification, addition, replacement or related activity does not increase the existing total footprint of the residence and associated impervious surface lying within the above-described buffer or building setback area by more than 1,000 square feet over that existing before November 27, 1990, and no portion of the modification, addition or replacement is located closer to the critical area or, if the existing residence is in the critical area, extends farther into the critical area.~~

~~(c) Maintenance or repair of structures that do not meet the development standards of this chapter for landslide or seismic hazard areas if the maintenance or repair does not increase the footprint of the structure and there is no increased risk to life or property as a result of the proposed maintenance or repair.~~

~~(d) Select Vegetation Removal Activities. The removal of the following invasive vegetation is allowed with hand labor and/or light equipment; provided, that the appropriate erosion control measures are used and the area is replanted with native vegetation according to a restoration or enhancement plan that has been approved by the City of Sammamish:~~

~~(i) Noxious weeds as identified by Washington State or King County noxious weed lists;~~

~~(ii) Himalayan blackberry (*Rubus discolor*, *R. procerus*);~~

~~(iii) Evergreen blackberry (*R. laciniatus*);~~

~~(iv) Ivy (*Hedera* spp.); and~~

~~(v) Holly (*Ilex* spp.), laurel, Japanese knotweed (*Polygonum cuspidatum*), or any other species on the King County noxious weed list.~~

~~Removal of any native vegetation or woody debris from a critical area is prohibited unless the action is part of an approved alteration.~~

~~(e) Conservation, Preservation, Restoration and/or Enhancement.~~

~~(i) Conservation and preservation of soil, water, vegetation, fish and other wildlife that does not entail alteration of the location, size, dimensions or functions of an existing critical area or buffer; and~~

~~(ii) Restoration and enhancement of critical areas or buffers; provided, that actions do not alter the location, dimensions or size of the critical area or buffer; that actions improve and do not reduce the existing quality or functions of the critical areas or buffers; and that actions are implemented according to a restoration or enhancement plan that has been approved by the City of Sammamish.~~

~~(2) Existing and ongoing agriculture and grazing of livestock is exempt from the provisions of this chapter and any administrative rules promulgated thereunder, except for the livestock restriction provisions, SMC 21A.50.290 and 21A.50.330, and any animal density limitations established by law, if the agriculture or grazing activity was in existence before November 27, 1990.~~

~~(73) [NO CHANGE]~~

A-4 New Wetland Mitigation Ratios (3-6) and Wetland Mosaic Requirements (3-7)

Proposed ECA amendments allowing fee In-lieu mitigation for streams and wetlands:

21A.50.310 Wetlands – Mitigation requirements.

(6) Mitigation Ratios.

~~(a) Acreage Replacement Ratios. The following ratios shall apply to wetland creation or restoration that is in-kind, on-site, the same category, and has a high probability of success. The first number specifies the acreage of replacement wetlands and the second specifies the acreage of wetlands altered.~~

Category I	6 to 1
Category II	3 to 1
Category III	2 to 1
Category IV	1.5 to 1

(a) Wetland Mitigation Ratios. The following ratios shall apply to required wetland mitigation. The first number specifies the acreage of replacement wetlands and the second specifies the acreage of wetlands altered.

(i) Permanent Wetland Mitigation. The following ratios of area of mitigation to area of alteration apply to mitigation measures for permanent alterations.

<u>Category and type of wetland</u>	<u>Wetland reestablishment or creation</u>	<u>Wetland rehabilitation</u>	<u>1:1 Wetland reestablishment or wetland creation (R/C) and wetland enhancement (E)</u>
<u>Category I bog</u>	<u>Not allowed</u>	<u>6:1 rehabilitation of a bog</u>	<u>Case-by-case</u>
<u>Category I natural heritage site</u>	<u>Not allowed</u>	<u>6:1 rehabilitation of a natural heritage site</u>	<u>Case-by-case</u>
<u>Category I based on score for functions</u>	<u>4:1</u>	<u>8:1</u>	<u>1:1 R/C and 6:1 E</u>
<u>Category I forested</u>	<u>6:1</u>	<u>12:1</u>	<u>1:1 R/C and 10:1 E</u>
<u>Category II</u>	<u>3:1</u>	<u>8:1</u>	<u>1:1 R/C and 4:1 E</u>

<u>Category III</u>	<u>2:1</u>	<u>4:1</u>	<u>1:1 R/C and 2:1 E</u>
<u>Category IV</u>	<u>1.5:1</u>	<u>3:1</u>	<u>1:1 R/C and 2:1 E</u>

(ii) Temporary Wetland Mitigation. The following ratios of area of mitigation to area of alteration apply to mitigation measures for temporary alterations where wetlands will not be impacted by permanent fill material:

<u>Wetland category</u>	<u>Permanent conversion of forested and shrub wetlands into emergent wetlands</u>			<u>Mitigation for temporal loss of forested and shrub wetlands when the impacted wetlands will be revegetated to forest or shrub communities</u>		
	<u>Enhancement</u>	<u>Re-habilitation</u>	<u>Creation or restoration</u>	<u>Enhancement</u>	<u>Re-habilitation</u>	<u>Creation or restoration</u>
<u>Category I</u>	<u>6:1</u>	<u>4.5:1</u>	<u>3:1</u>	<u>3:1</u>	<u>2:1</u>	<u>1.5:1</u>
<u>Category II</u>	<u>3:1</u>	<u>2:1</u>	<u>1.5:1</u>	<u>1.5:1</u>	<u>1:1</u>	<u>.75:1</u>
<u>Category III</u>	<u>2:1</u>	<u>1.5:1</u>	<u>1:1</u>	<u>1:1</u>	<u>.75:1</u>	<u>.5:1</u>
<u>Category IV</u>	<u>1.5:1</u>	<u>1:1</u>	<u>.75:1</u>	<u>Not applicable</u>	<u>Not applicable</u>	<u>Not applicable</u>

(b) Wetland Buffer Replacement Ratio. Altered wetland buffer area shall be replaced at a minimum ratio of one-to-one, provided that the replacement ratio may be increased at the director's discretion to replace lost functions and values.

A-5 New Allowances for Impacts to Small, Isolated Wetlands (3-19e)

Proposed ECA amendments providing new allowances for impacts to small, isolated wetlands:

21A.50.320 Wetlands – ~~Limited exemption~~ Development Flexibilities. The following alterations shall be authorized if the City determines that the cumulative impacts do not unduly counteract the purposes of this chapter SMC 21A.50 Environmentally Critical Areas and are mitigated pursuant to an approved mitigation plan.

(1) Isolated wetlands, as designated by a qualified professional in a written and approved critical areas study meeting the requirements of SMC 21A.50.130 and, which includes the use of the adopted Washington State Wetland Rating System for Western Washington, with a total area with an area of less up to than 1,000 square feet may be exempted from the avoidance sequencing provisions of SMC 21A.50.135(1)(a) and the provisions of SMC ~~21A.50.290~~ and may be altered by filling or dredging if the City determines that the cumulative impacts do not unduly counteract the purposes of this chapter and are mitigated pursuant to an approved mitigation plan.

(2) Isolated category III and IV wetlands, as designated by a qualified professional in a written and approved critical areas study meeting the requirements of SMC 21A.50.130 and, which includes the use of the adopted Washington State Wetland Rating System for Western Washington, with a total area of more than 1,000 square feet and up to 4,000 square feet, may be exempted from the avoidance sequencing provisions of SMC 21A.50.135(1)(a) and the provisions of SMC 21A.50.290 and may be altered, provided:

(a) The total area of wetland alterations shall be limited to 2,500 square feet; and

(b) A critical areas study is prepared, which includes the use of the adopted Washington State Wetland Rating System for Western Washington, includes a review of the existing functions that the wetland provides, determines how the isolated wetland should be managed for ecological function of the watershed as a whole, and according to the approved critical areas study meets all of the following criteria:

(i) The wetland is not adjacent to a riparian area; and

(ii) The wetland is not part of a wetland mosaic; and

(iii) The wetland does not score 15 points or greater for habitat; and

(iv) The wetland does not contain habitat identified as essential for local populations of priority species identified by Washington Department of Fish and Wildlife; and,

(c) Mitigation to replace lost wetland functions and values, consistent with SMC 21A.50.310 shall be prepared for review and approval by the City.

(3) Category III and IV wetlands with a total area of 4,000 square feet or less may have the buffer reduced to 15 feet, provided:

(a) The wetland does not score 15 points or greater for habitat in the adopted Western Washington Rating System; and,

(b) The wetland is not part of a wetland mosaic; and,

(c) The buffer functions associated with the area of the reduced buffer width are mitigated through the enhancement of the wetland, the remaining on-site wetland buffer area, and/or

other adjoining high value habitat areas as needed to replace lost buffer functions and values; and

(d) No subsequent buffer reduction or averaging is authorized.

A-6 Buffer Reduction for Category III and IV Wetlands (3-19d)

Proposed ECA amendments providing buffer reduction for Category III and IV wetlands less than 4,000 square feet in size:

21A.50.320 Wetlands – ~~Limited-exemption~~ Development Flexibilities. The following alterations shall be

(3) Category III and IV wetlands with a total area of 4,000 square feet or less may have the buffer reduced to 15 feet, provided:

(a) The wetland does not score 15 points or greater for habitat in the adopted Western Washington Rating System; and,

(b) The wetland is not part of a wetland mosaic; and,

(c) The buffer functions associated with the area of the reduced buffer width are mitigated through the enhancement of the wetland, the remaining on-site wetland buffer area, and/or other adjoining high value habitat areas as needed to replace lost buffer functions and values; and

(d) No subsequent buffer reduction or averaging is authorized.

A-7 New Allowances for Subdivision in the Erosion Hazard near Sensitive Water Bodies (EHNSWB) Overlay (4-15)

Proposed ECA amendments allowing additional ~~single-family~~single-family development and ‘pilot project’ subdivision within the EHNSWB Overlay ‘no disturbance’ zone:

Clarified Definition :

21A.15.4XX Erosion Hazard Near Sensitive Water Body Overlay. The Erosion Hazard Near Sensitive Water Body overlay means an area within the city where sloped areas posing erosion hazards, or contributing to erosion hazards, that drain directly to lakes or streams of high resource value that are particularly sensitive to the impacts of increased erosion and the resulting sediment loads from development. The department of community development shall maintain a map of the boundaries of the erosion hazard near sensitive water bodies overlay district.

The Erosion Hazard Near Sensitive Water Body overlay is divided into two areas:

(a) The no-disturbance area. The no-disturbance area shall be established on the sloped portion of the special district overlay to prevent damage from erosion. The upslope boundary of the no-disturbance area lies at the first obvious break in slope from the upland plateau over onto the valley walls. For the purposes of locating the first obvious break in slope, the first obvious break shall generally be located at the top of the erosion hazard area associated with the slope. The downslope boundary of the no-disturbance area is the extent of those areas designated as erosion or landslide hazard areas. The department shall maintain maps, supported by LIDAR (Light Detection and Ranging) data or other suitable technology, of the approximate location of the no-disturbance areas, which shall be subject to field verification for new development proposals.

(b) Properties draining to the no-disturbance area. Properties draining to the no-disturbance area are within the Erosion Hazard near Sensitive Water body overlay that drain to the no-disturbance area.

Proposed amendments:

21A.50.225 Erosion hazards near sensitive water bodies – ~~Special district~~ overlay.

(3) No-disturbance area development standards. The following development standards shall be applied, in addition to all applicable requirements of this chapter, to development proposals located within the ~~no-disturbance area erosion hazards near a sensitive water bodies special district overlay~~:

(b) New single-family home construction or modifications or additions to existing single-family homes on existing legal lots that will result in a total site impervious surface of more than 2,000 square feet shall provide a drainage design, using the following sequential measures, which appear in order of preference:

(i) Infiltration of all site runoff shall be required to the maximum extent technically feasible in soil conditions, consistent with the infiltration system design requirements of the KCSWDM;

(ii) Development proposals that meets the goals of Low Impact Development, as follows:

(A) Sixty-five (65) percent of the site shall remain as open space.

(B) No more than ten (10) percent of the gross site area may be covered with impervious surface.

(C) Limit stormwater discharge volumes to match average annual volume discharged from the pre-developed forested site conditions as determined using a calibrated continuous simulation hydrologic model based on the EPA's HSPF program or an approved equivalent model. The city may modify these requirements based upon site specific analysis of the feasibility of required improvements, standards and specifications. Such analysis shall include evaluation of site and vicinity soils, hydrology, and other factors, as determined by the City, affecting the successful design of the stormwater or low impact development improvements. The city shall consider purpose, effectiveness, engineering feasibility, commercial availability of technology, best management practices, safety and cost of the proposal when evaluating a waiver or modification request. The applicant shall bear the burden of proof that a waiver or modification is warranted.

(iii) For development proposals that cannot infiltrate all site runoff, the applicant shall design a drainage system that provides a drainage outlet designed using the best available science techniques to limit the risk of landslide or erosion to the no-disturbance area; and

(iv) Structural modification of, addition to or replacement of legally created single detached residences and improvements that were legally established according to the regulations in place at the time of establishment, shall be exempt from the provisions of this section.

(5) Pilot Program.

(a) Establishment of Pilot Program. A Pilot Program is hereby established to allow clearing and development projects within the no-disturbance area as set forth herein on land that has slopes of less than 40 percent grade and that is located outside of environmentally critical area

buffers.

(b) Purpose. The purpose of this Pilot Program is to allow for limited development within the no disturbance area under strict limitations in order to evaluate the ability to allow increased development within the no-disturbance area without adversely affecting the water quality of Lake Sammamish. Projects qualifying for this Pilot Program would not be subject to the preceding sections of 21A.50.225.

(c) Eligible Projects. Projects eligible for inclusion in this Pilot Program include, without limitation, three (3) subdivisions with direct discharges to the lake using a tightline system, three (3) subdivisions without direct discharge via a tightline, and three (3) short subdivisions that are designed subject to one of the following:

(i) Where direct access to Lake Sammamish is available, the applicant shall install permanent water quality treatment per adopted manual and a tightline storm drain system discharging directly into Lake Sammamish designed by a professional engineer using the most current drainage manual and technologies. The applicant shall also install temporary erosion sediment control improvements, in particular active water quality treatment. The tightline system shall extend through the property and be available by extension or easement upstream to properties that naturally drain to the subject property; or,

(ii) Where direct access to Lake Sammamish is not available, the applicant shall design a project consistent with the development standards of Low Impact Development, specifically:

(A) Sixty-five (65) percent of the site shall remain as forested open space. Re-vegetation shall be required to convert non-forested open space to forested as part of the project approval.

(B) No more than ten (10) percent of the gross site area may be covered with impervious surface.

(C) Limit stormwater discharge volumes to match average annual volume discharged from the pre-developed forested site conditions as determined using a calibrated continuous simulation hydrologic model based on the EPA's HSPF program or an approved equivalent model. The city may modify these requirements based upon site specific analysis of the feasibility of required improvements, standards and specifications. Such analysis shall include evaluation of site and vicinity soils, hydrology, and other factors, as determined by the City, affecting the successful design of the stormwater or low impact development improvements. The city shall consider purpose, effectiveness, engineering feasibility, commercial availability of technology, best management practices, safety and cost of the proposal when evaluating a waiver or modification request. The applicant shall bear the burden of proof that a waiver or modification is warranted.

(iii) Where access to Lake Sammamish is only available via connection to an existing offsite, manmade conveyance, the applicant shall design a project consistent with the following:

(A) The project site must be less than 5 acres in size;

- (B) Permanent stormwater treatment and flow control facilities shall be installed consistent with current City standards. In addition, these facilities shall remove 60 percent of total phosphorus;
- (C) Stormwater detention shall be enhanced to achieve Level 3 flow control or equivalent based upon the adopted surface water design manual and Title 13 Surface Water Management;
- (D) All treatment and flow control facilities, tightlines, and connections to existing offsite, manmade conveyances shall be designed by a professional engineer, using the adopted surface water design manual. The off-site manmade conveyance shall be evaluated per section 1.2.4.2 (Conveyance Requirements for Existing Systems) of the adopted surface water design manual and Title 13 Surface Water Management. A downstream analysis of all open channel elements of the off-site, manmade conveyance shall be required. The analysis shall address the entirety of the conveyance from the project site to Lake Sammamish and shall include a field inspection, geotechnical review, and quantitative hydraulic analysis. The analysis shall be subject to a third-party peer review at the applicant's expense. Any necessary repairs or improvements to the existing offsite, manmade conveyance, as identified in the downstream analysis, shall be required to ensure that the conveyance can function properly without creating or exacerbating erosive or flooding conditions within the conveyance or on other affected areas;
- (E) Temporary erosion and sediment control improvements, in particular temporary flow attenuation and active water quality treatment, shall be installed in accordance with current City standards, subject to the additional provisions of 5(e), below;
- (F) Effective impervious surface coverage on each residential lot shall be limited to a maximum of 50 percent of the lot area;
- (G) A minimum of 15 percent of the gross project site area shall be retained as open space. This open space shall be in addition to the open space otherwise required for recreational use, and shall be established in dedicated tracts that may include stormwater management facilities;
- (H) In addition to meeting current tree retention standards per SMC 21A.35.210(1)(a), all dedicated open space areas shall be revegetated. Revegetation shall consist of: native trees (70% evergreen), provided at a rate of 1 per 200 square feet and spaced no more than 40 feet on center; native shrubs, provided at a rate of 1 per 20 square feet; and groundcover pursuant to SMC 21A.35.080. Revegetation shall apply to disturbed areas not otherwise occupied by storm water management facilities or recreation area;
- (I) A minimum of 15 percent of each residential lot shall contain drought-tolerant native plantings; and,
- (J) Each single-family residence developed shall provide roof rainwater harvesting (collection, storage, and distribution) facilities sufficient to flush

toilets for a family of four.

(d) Pilot Program Administration.

(i) Application. Applications for eligible projects meeting the provisions of 5(c) above must be submitted within three calendar years from the effective date of the adoption by ordinance of the Pilot Program on forms provided by the Department.

(A) Application for eligible projects shall be accepted in the order received. To qualify for application, an applicant must have a complete application as described in the city's application material and SMC 20.05, and completed any necessary preliminary steps prior to application as set forth in SMC 20.05. The City shall maintain a register of applications submitted after the maximum number of application have been received.

(B) In the event that an application for a project accepted into the Pilot Program is withdrawn by the applicant or cancelled by the City prior to the expiration of the Pilot Program, the next submitted application on the register for the same development type shall be accepted into the Pilot Program.

(C) The city shall use its authority under SMC 20.05.100 to ensure expeditious processing of subdivision applications. In particular, the director shall set a reasonable deadline for the submittal of corrections, studies, or other information when requested; an extension may be provided based upon a reasonable request. Failure by the applicant to meet a deadline shall be cause for the department to cancel/deny the application.

(D) Site development construction shall begin no later than 18 months from the date of preliminary plat approval. The director may authorize a one year extension based upon extenuating circumstances.

(ii) Pilot Program Expiration. The Pilot Program shall expire and no further applications shall be accepted after such three year period as established in subsection "(d)(i)" above. Projects for which applications are accepted into the Pilot Program may be reviewed, approved and constructed, under the terms of the Pilot Program, even if such review, approval, or construction occurs after the Pilot Program has expired.

(e) Development Restrictions. Projects accepted under this Pilot Program may conduct clearing and development in the no-disturbance area, and shall not be subject to subsection 21A.50.225(2) so long as such clearing and development meets all of the following requirements:

(i) The development shall comply with the adopted Surface Water Design Manual (KCSWDM) and Title 13 Surface Water Management;

(ii) Clearing of the site shall be limited based on the treatment capacity designed into the permanent and temporary water quality treatment systems installed;

(iii) Construction Season Work Limits - Land clearing and grading may only occur between May 1st to September 30th with the phases of construction limited as follows:

(A) On or after May 1st, site clearing and grading necessary for the installation of permanent and temporary water quality treatment and conveyance may

occur. Clearing and grading shall be limited to those portions of a site where such work is necessary to install tight-line stormwater conveyance, permanent and temporary stormwater detention, and/or water quality facilities. For the purposes of temporary erosion and sediment control, the required tightline system may be either a portion of the permanent stormwater conveyance system if feasible, or a temporary tightline system to be replaced by the permanent system as construction progresses;

(B) On or after June 1st, development of the site may occur;

(C) No later than September 30th, all site clearing and grading activity must be completed and the site fully prepared for winter rains, through techniques such as hydroseeding or stabilization as set forth in an approved Construction Season Work Limit Plan;

(D) Seasonal construction limitations may be extended with permission of the director if appropriate erosion control measures and practices are in place and weather patterns permit.

(iv) Construction Season Work Limit Implementation. City approval of a temporary erosion and sediment control plan consistent with this section, SMC 21A.50.220, and other laws and regulations is required prior to any site work. The temporary erosion and sediment control plan shall comply with grading limits, shall include Construction Season Work Limits that comply with the construction season limitations, and shall include a Close Out Plan identifying the actions that will be taken to ready the site for winter weather. The Close Out Plan shall include the following:

(A) By August 15th City approval of any proposed changes to the Close Out Plan to assure that the site will be prepared for winter weather by September 30th is required.

(B) By September 1st review and approval of any revisions to the close out plan is required.

(C) By September 15th, city inspection is required of the site to confirm that all mandatory elements of the Close Out Plan are being implemented. Following inspections, the city shall direct the applicant to take any additional actions that are necessary and may order all construction work to be stopped other than work to prepare the site for winter weather.

(D) By September 30th all site work to prepare the site for winter weather shall be completed.

(E) Seasonal construction limitations may be extended with permission of the director if appropriate erosion control measures and practices are in place and weather patterns permit.

(v) Early Installation of Permanent Stormwater Management System. In addition to installation of all required Temporary Sediment and Erosion Control measures, and prior to any grading, other than grading necessary for installation of the stormwater management system, the applicant shall construct the Project's stormwater management systems in accordance with plans approved by the

City. Stormwater systems shall include permanent and temporary water quality treatment and detention facilities specified in the latest approved version of the Surface Water Design Manual and the pipes and outlet facilities necessary to convey stormwater to the approved discharge location.

(A) Temporary water quality treatment facilities shall be sized to treat runoff generated by cleared areas during the 10 year storm event during May through September and the 25 year storm event for the remainder of the year and release treated runoff with a measured turbidity of no more than 25 NTU.

(B) Temporary water quality treatment facilities shall include active sediment controls, such as chemical treatment, enhanced filtration or a combination of both per DOE guidelines (Section C250 & C251, Volume II, Department of Ecology Stormwater Management Manual).

(f) Post Development Phosphorous Control. Post development water quality treatment shall be designed to remove, on an annual basis, 60% or more of all new total phosphorous loading resulting from new development and associated storm water discharge.

(g) Monitoring and Reporting on Pilot Program projects. The purpose of collecting monitoring and reporting information on the pilot program projects is to create inform the eventual legislative decision on development in the no-disturbance area. Projects authorized by this pilot program shall collect and report the following:

(i) Monitoring Data. Water quality monitoring data collected pursuant to this section shall include the following:

(A) Turbidity;

(B) Total phosphorous;

(C) Total suspended solids;

(D) Flow rate; and,

(E) Volume.

Water quality monitoring data shall be retained by the project applicant for a period of five years after final inspection of the last house built.

(ii) Prior to Construction. Prior to any site construction activity, the project applicant shall be responsible for completing visual inspections of the site and downstream properties to identify possible sources of erosion before, during, and after construction to provide a baseline condition for other data collection.

(iii) During Construction. During any site construction activity the project applicant shall be responsible for collecting monitoring data in accordance with the frequency established by the NPDES permit at the natural discharge location. Monitoring data shall be collected prior to the start of construction, through the construction period and until the last house has been built on the site.

(iv) Following Construction. Following the final inspection of the last house built, the project applicant shall be responsible for collecting monitoring data for five years.

Data collection shall occur at a frequency of seven times a year between the months of October and June.

(v) Water Quality Reporting. Monitoring data shall be summarized in annual water quality reports submitted to the city. Annual reports shall evaluate the effect on King County water quality data from Lake Sammamish.

(vi) Administrative rules. The director is authorized to adopt administrative rules to ensure the successful water quality data collection, monitoring, and reporting to the city.

(h) Pilot Program Evaluation. The city shall monitor the pilot program through the annual reports and shall summarize the report findings in a report evaluating how well each project achieved the pilot program's purpose and goals and present the report to the City Council along with a recommended legislative action.