City of Lake Stevens Mission Statement

The City of Lake Stevens' mission is not only to preserve the natural beauty that attracted so many of its citizens, but to enhance and harmonize with the environment to accommodate new people who desire to live here. Through shared, active participation among Citizen, Mayor, Council, and City Staff, we commit ourselves to quality living for this and future generations.

Growth in our community is inevitable. The City will pursue an active plan on how, when, and where it shall occur to properly plan for needed services, ensure public safety, and maintain the unique ambience that is Lake Stevens.

CITY OF LAKE STEVENS
CITY COUNCIL SPECIAL AND WORKSHOP AGENDAS
Lake Stevens School District Educational Services Center (Admin. Bldg.)
12309 22nd Street NE, Lake Stevens
Monday, February 7, 2011 - 7:00 p.m.

SPECIAL MEETING

CALL TO ORDER: 7:00 p.m.
Pledge of Allegiance

ROLL CALL:

ACTION ITEM:	*A.	Approve Resolution No. 2011-1 declaration of emergency for the immediate repair of Lake Stevens outfall west bank and Main Street, south of 20th Street NE.	Mick

ADJOURN:

==========

WELCOME TO A CITY COUNCIL WORKSHOP SESSION

Council Workshops are designed to allow Councilmembers to gather information in preparation for making a decision on various community issues. Usually, City of Lake Stevens staff members, or occasionally an outside expert, present Councilmembers with information in response to their questions.

DISCUSSION ITEMS:	*A.	Solid waste collection discussion.	Jan
	*B.	Shoreline Master Plan briefing.	Becky/Karen

COUNCIL PERSON'S BUSINESS:

MAYOR'S BUSINESS:

STAFF REPORTS:

INFORMATION ITEMS:	*A.	Special meeting notice.	Norma

City Council Special and Workshop Agendas February 7, 2011

EXECUTIVE SESSION:

***ITEMS ATTACHED**
****ITEMS PREVIOUSLY DISTRIBUTED**
#ITEMS TO BE DISTRIBUTED

THE PUBLIC IS INVITED TO ATTEND

Special Needs

The City of Lake Stevens strives to provide accessible opportunities for individuals with disabilities. Please contact Steve Edin, City of Lake Stevens ADA Coordinator, (425) 377-3227, at least five business days prior to any City meeting or event if any accommodations are needed. For TDD users, please use the state's toll-free relay service, (800) 833-6388, and ask the operator to dial the City of Lake Stevens City Hall number.

LAKE STEVENS CITY COUNCIL

STAFF REPORT

Council Agenda Date: 7 February 2011

Subject: Declaration of Emergency for the immediate repair of Lake Steven outfall west bank and Main Street, south of 20th Street NE

Contact Person/Department:	Mick Monken Public Works	**Budget Impact:**	$10,000 Est

RECOMMENDATION(S)/ACTION REQUESTED OF COUNCIL: Declare a state of emergency for the immediate repair of Lake Stevens outfall west bank and Main Street, south of 20th Street NE

SUMMARY/BACKGROUND: During the mid month of January 2011, the City and region received a number of heavy rainfall events. This resulted in a number of flooding issues, high levels in Lake Stevens, and areas of minor slide and mud flow damages. The City staff has been performing inspections throughout the City to identify resulting storm damages that impact the City's infrastructure.

On 31st January 2011, the City discovered a bank failure to the west bank of the Lake Stevens outfall, south of 20th Street NE, under an existing private structure. The failed bank was a result of heavy rain event waters causing an existing retaining wall to fail. This resulted in undermining of a public sidewalk and compromising the roadway prism. Immediate repairs are needed to protect the roadway from damages, including possible lost of the pavement, and to reopen the sidewalk.

The City will be seeking state funding to help recover some of the costs. The cost is estimated to be approximately $15,000 and work will be performed by City staff on the bank repair and by a contractor on the sidewalk replacement. Work is expected to begin as soon as possible.

APPLICABLE CITY POLICIES: RCW 39.04.280: Competitive Bidding Requirements

BUDGET IMPACT: Estimate $10,000 which includes geotechnical services, materials, and contracted services for the concrete work.

ATTACHMENTS:

► Exhibit A: Resolution 2011-1

Exhibit A

CITY OF LAKE STEVENS
LAKE STEVENS, Washington

RESOLUTION NO. 2011-1

A RESOLUTION OF THE CITY OF LAKE STEVENS DECLARING AN EMERGENCY TO PERFORM SERVICES TO REPAIR THE LAKE STEVEN OUTFALL BANK ADJACENT TO MAIN STREET JUST SOUTH OF 20TH STREET NE BRIDGE RESULTING FROM NATURAL CAUSES IN THE FLOW IN THE LAKE STEVENS OUTFALL DURING THE HEAVY RAIN STORM EVENTS OCCURRING IN MID JANUARY 2011

WHEREAS, during the mid January 2011 the City was impacted with multiply high volume rain falls events that resulted in a number of flooding conditions, high levels in Lake Stevens, and several slide areas; and

WHEREAS, the City has been performing inspections throughout the City identifying storm damage areas; and

WHEREAS, it was discovered on 31 January 2011 that a section of the west bank of the Lake Stevens outfall channel, south of the 20th Street NE bridge, and adjacent to Main Street had failed as a result of the heavy rain events water being conveyed through an existing concrete block bank protection; and

WHEREAS, as a result of concrete block bank failure, the public sidewalk had been undermined and the road prism compromised; and

WHEREAS, Main Street is the major road for the City's Downtown area and a main commuter route for the east side of the lake; and

WHEREAS, the City Engineer has determined that repairs are necessary to be performed as soon as possible to reduce the risk of further damage or loss of public infrastructure; and

WHEREAS, the public health, safety and welfare of the City's local citizens and businesses may be jeopardized if immediate repair work is not commenced;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF LAKE STEVENS, WASHINGTON AS FOLLOWS:

1. An emergency exists such that the public health, safety and welfare would suffer material injury or damage by delay, and such emergency is now hereby proclaimed.

2. The facts constituting the emergency are set forth in the recital paragraphs of this Resolution.

3. Pursuant to RCW 39.04.280, the City Council does hereby waive the requirements of public bidding to contract for the repair and restoration of the roadway prism.

4. The City Council does hereby authorize the Mayor to enter into an emergency work contract as determined necessary with a qualified professional service provider/s and contractor/s to repair the damage and to restore the west bank of the Lake Stevens outfall channel, south of the 20th Street NE Bridge, and to Main Street in the area of the bank work.

PASSED by the City Council and APPROVED by the Mayor this 7th day of February 2011.

CITY OF LAKE STEVENS

_____
Vern Little, Mayor

ATTEST:

_____
Norma J. Scott, City Clerk/Admin Asst

Approved as to form:

By_____
Grant K. Weed, City Attorney

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LAKE STEVENS CITY COUNCIL

STAFF REPORT

Council Agenda Date: February 7, 2011

Subject: Amendment No. 2 to Garbage, Recycling & Yard Debris Collection Contract

Contact Person/Department: City Administrator Jan Berg **Budget Impact:** None

RECOMMENDATION(S)/ACTION REQUESTED OF COUNCIL:
Staff would like to have a discussion and receive direction from the City Council regarding various issues related to solid waste services.

SUMMARY/BACKGROUND:

The City currently contracts with Allied Waste to perform garbage, recycling and yard debris collection including billing and customer service. Allied Waste has been a reliable partner and has provided a high level of service to both the customers and the City. The current contract is due to expire on March 31, 2011 but includes the ability to extend the contract. The City and the Contractor have met over the last few months regarding the possibility of a contract extension.

Also, staff would like to discuss the possibility of taking over solid waste collection services in the annexation areas of the City. Currently the City is only allowed to contract for services within the original city limits and the annexed areas are serviced under a Washington Utilities Franchise with Waste Management. If the City desires to eventually service this area, the City Council should state that desire in a resolution which would begin the seven year wait period on the current franchise in these areas.

APPLICABLE CITY POLICIES:

BUDGET IMPACT: None

ATTACHMENTS:

- ► Exhibit A:
- ► Exhibit B:
- ► Exhibit C:

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LAKE STEVENS CITY COUNCIL

STAFF REPORT

Agenda Date: February 7, 2011

Subject: Lake Stevens Shoreline Master Program Update – SMP Document Briefing #2 (LS2009-11)

Contact Person/Department: Karen Watkins **Budget Impact:** Grant

RECOMMENDATION(S)/ACTION REQUESTED OF CITY COUNCIL: No action at this time. A public hearing will be held on April 11, 2011. This will be a summary of Chapter 4 Shoreline Modifications of the Shoreline Master Program (SMP) document and associated documents in a PowerPoint presentation (***Attachment 1***).

SUMMARY: City received a two year, $60,000, Shoreline Master Program Update grant from the Washington State Department of Ecology in 2009 to complete a comprehensive Shoreline Master Program update. The grant covers July 1, 2009 through June 30, 2011. The City hired Makers Architecture, Inc. and The Watershed Company to assist City Staff. A Shoreline Citizen Advisory Board was created to guide the consultants and staff through the process. As part of drafting of the required documents, four open houses were offered to solicit public comments.

The draft Shoreline Master Program Update was completed in December and sent to Ecology for review. This briefing will include Chapter 4 Shoreline Modifications of the Shoreline Master Program Draft dated December 15, 2010 (***Attachment 2)***. The briefing will also include three associated documents: Cumulative Impacts Analysis (***Attachment 3***), the Restoration Plan (***Attachment 4***), and the No Net Loss Report (***Attachment 5***).

DISCUSSION: The SMP Local Adoption process will include at least two public hearings by the Planning Commission with a recommendation to Council and three public hearings by the City Council with final adoption. The process includes the Shoreline Master Program document, related code amendments, related comprehensive plan amendments and fee amendments. In addition, State Environmental Policy Act (SEPA) review is required. Staff is currently working towards completing the Local Adoption process by the end of May. Then the Washington State Department of Ecology's review process will begin. At the end of Ecology's process, the City will need to adopt the approved Ecology version of the SMP.

APPLICABLE CITY POLICIES: The State requires all cities to update their Shoreline Master Programs (SMP) on a specific schedule. The City's current SMP was adopted in 1974. The Comprehensive Plan includes shoreline goals and policies in Chapter 10 – Critical Areas Element. The Lake Stevens Municipal Code includes shoreline regulations in Chapter 14.92 (Shoreline Management) and Section 14.16C.100 (Shoreline Permits).

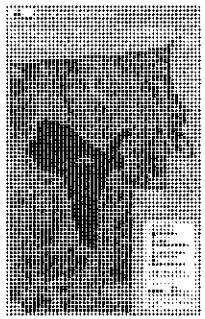
BUDGET IMPACT: The City received a two year, $60,000 Shoreline Master Program Update grant from the Washington Department of Ecology for consultants. The grant does not include staff time.

ATTACHMENTS:

Attachment 1 – SMP PowerPoint Presentation
Attachment 2 – Chapter 4 Shoreline Modifications
Attachment 3 – Cumulative Impacts Analysis
Attachment 4 – Restoration Plan
Attachment 5 – No Net Loss Report

City of Lake Stevens Shoreline Master Program Update

City Council Briefing #2
February 7, 2011



Ch. 4 Shoreline Modifications

- General Policies and Regulations
- Shoreline Stabilization (including bulkheads)
- Over-Water Structures (piers, docks)
- Fill
- Dredging and Disposal
- Shoreline Restoration and Ecological Enhancement
- Dikes and Levees

Agenda

- Chapter 4 – Shoreline Modifications
- Associated Documents
  - –Cumulative Impacts Analysis
  - –Restoration Plan
  - –No Net Loss Report

Ch. 4 Shoreline Modifications

P = May be permitted
C = May be permitted as a conditional use only
X = Prohibited; the use is not eligible for a variance or conditional use permit
N/A = Not applicable

	Natural	High-intensity	Urban Conservancy	Shoreline Residential	Aquatic[4]
Shoreline stabilization:					
Environmental restoration/enhancement	P	P	P	P	P
Bioengineering	C	P	P	P	C
Revetments	X	P	C	P	C
Bulkheads	X	P	C	P	C
Breakwaters/jetties/rock weirs/groins	X	X	X	X	X
Dikes/levees	X	C	C	C	C
Clearing and Grading	X	P	P	P	N/A
Dredging	N/A	N/A	N/A	N/A	C
Hazardous waste cleanup	P	P	P	P	P
Fill[1]	X	P	P	P	C[2]
Piers/docks[3]	X	P	P	P	P
Moorage piles, mooring buoys, & permanent swim floats	X	X	X	X	X

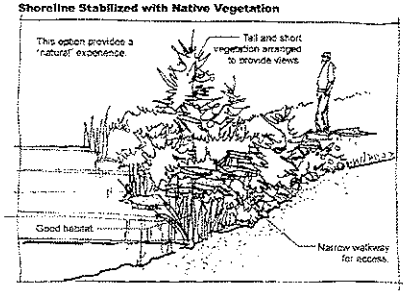
1. *Fill in the floodplain must meet all federal, state, and local flood hazard reduction regulations.*
2. *Fill in aquatic areas for the purposes of shoreline ecological restoration may be allowed as a permitted use if the Shoreline Administrator determines that there will be an increase in desired ecological functions.*
3. *New non-public piers and docks are prohibited on Little Pilchuck Creek and Catherine Creek.*
4. *A shoreline modification may be allowed in the Aquatic Environment if the chart indicates that it is allowed in both the Aquatic Environment and the adjacent upland environment.*

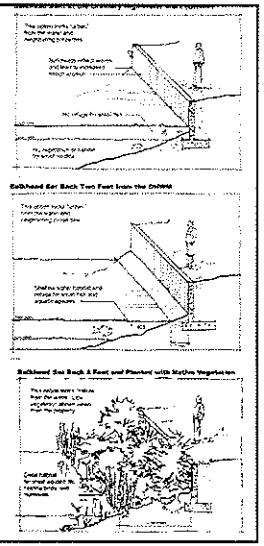
Shoreline Stabilization (4.c.2)

- New bulkheads prohibited, except to protect existing primary structure
- Geotechnical report must show the need for new stabilization measures (bulkheads) for new or enlarged structures.
- Replacement structures:
  - Only allowed if required to protect primary structure and nonstructural measure is not feasible
  - Minimize harm to ecological function

Shoreline Stabilization

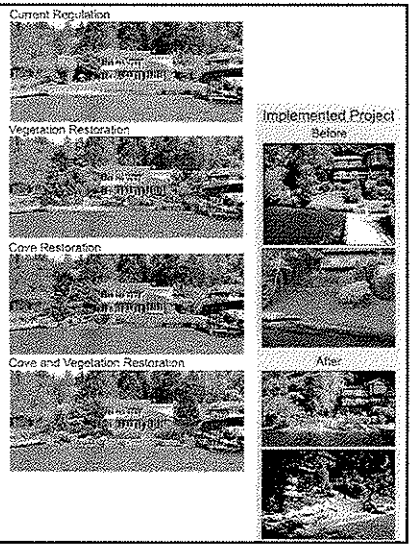
The "softest" stabilization method must be used.





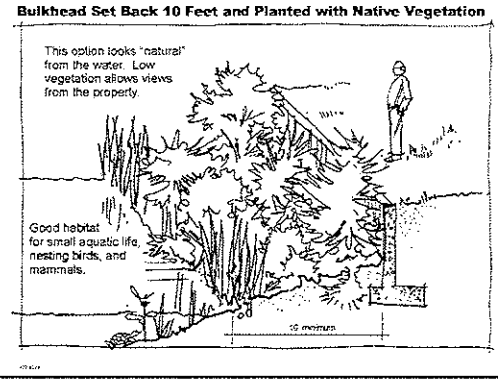
Shoreline Stabilization

- Right to protect property
- Encourage environmentally friendly alternatives
- Harden shoreline only when necessary



Shoreline Stabilization

"Restoration" projects may be done in the water (e.g., beaches).

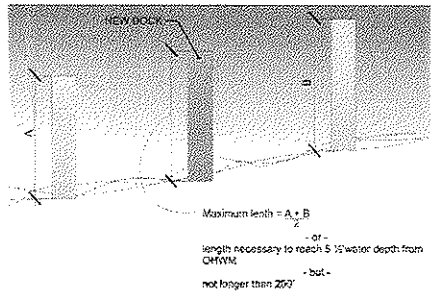


Shoreline Stabilization

- In order to replace a bulkhead, need must be shown (which is easier than the geotechnical report for new structures).
- If the house was built before 1992, a new bulkhead can be constructed directly in front of the existing one.

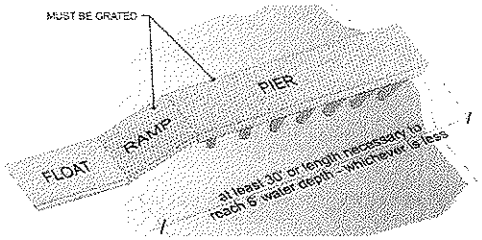
New Private, Residential Docks

- Length: average of the two adjacent docks OR minimum necessary to reach 5 ½ feet water depth, but not longer than 200'



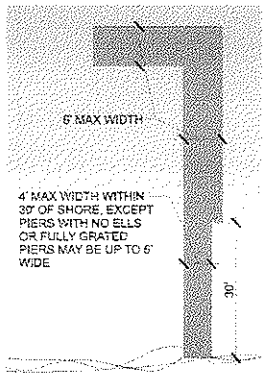
Overwater Structures (4.c.3)

- Minimum size necessary
- Only piers and ramps permitted in first 30'
- All new and replacement docks shall be grated in first 30'



New Private, Residential Docks

- Width:
  - Max width in first 30': 4'
    Exception: can be 6' IF:
    1) linear dock (no ells),
    2) entire dock is grated
  - Max width after first 30': 6'



Overwater Structures (4.c.3)

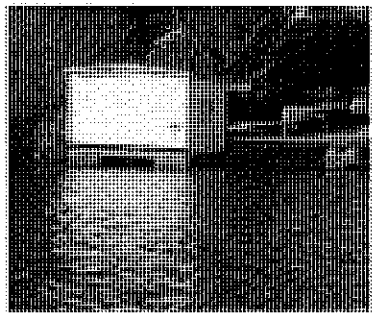
- Repair or Replacement of private residential docks:
  - Docks can be replaced up to 100% of the size of the existing pier
  - Grated decking is required in the first 30'

Residential Piers and Docks

New recreational swimming floats/platforms and *new* boathouses are prohibited.

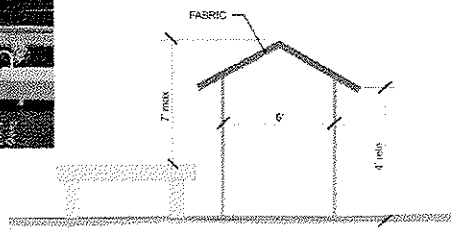
Existing may remain

Inflatable recreational equipment is allowed from May 1 through September 30



Residential Piers and Docks

Boatlift canopies must be fabric and at least 4 feet above the water but less than 8.5 feet above the dock.



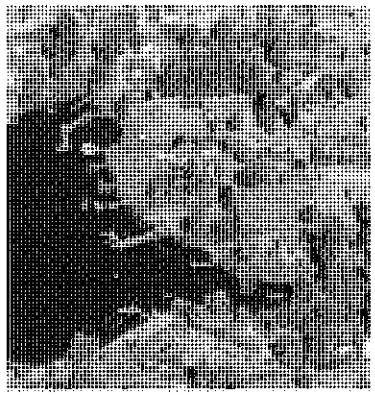
Canopy dimensional requirements for provision 30 page 56

Other Shoreline Modifications

In-water fill is permitted for ecological restoration.

Dredging is for navigation only, and impacts must be mitigated.

Some commercial uses may be allowed near the waterfront park.

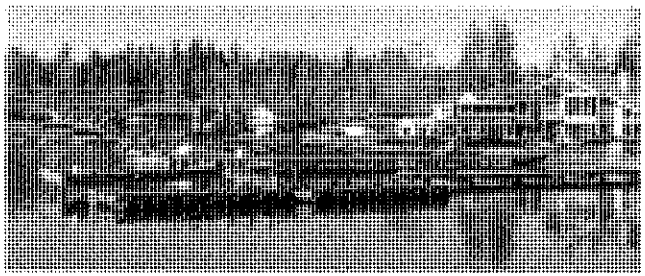


Other Shoreline Modifications

New covered moorage is prohibited.

New marinas are prohibited.

Existing may remain

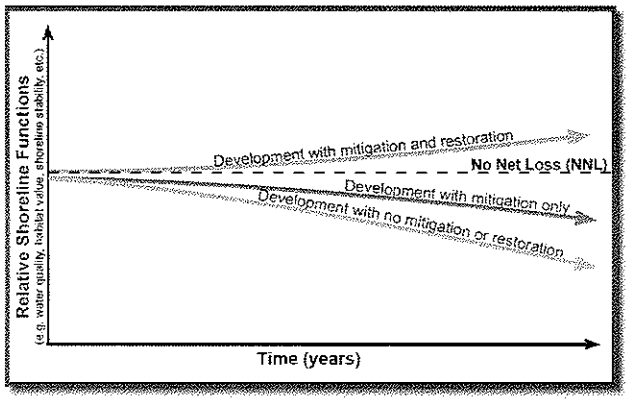


Cumulative Impacts Analysis

General overview by Environment:

- Evaluate **current circumstances** affecting the shoreline and natural processes
- Evaluate reasonably foreseeable **future development** and use of shoreline
- Evaluate beneficial effects of any other established regulatory programs

Cumulative Impacts Analysis



Cumulative Impacts Analysis

- Specific overview by key impacts:
  - Residential development
  - Overwater structures
  - Shoreline stabilization

= Net Effect

Restoration Plan

- Review of **existing and ongoing programs** (City, State, non-profits)
- **Strategies** to achieve local restoration goals (identify tools)
- Proposed **implementation targets** and monitoring methods

Next Steps

- Awaiting Ecology's final comments
- Prepare Preliminary Final SMP
- Final Council briefing Feb 14
- Public Hearings begin
  - –March 2 at Planning Commission
  - –April 11 at City Council

No Net Loss Report

- Provides a summary review of how the City meets the No Net Loss Requirement for:
  - –Ecological functions
  - –Public access
  - –Shoreline use

Questions?

CHAPTER 4
Shoreline Modification Provisions

A. Introduction and Applicability

Shoreline modifications are structures or actions which permanently change the physical configuration or quality of the shoreline, particularly at the point where land and water meet. Shoreline modification activities include, but are not limited to, structures such as revetments, bulkheads, levees, breakwaters, docks, and floats. Actions such as clearing, grading, landfilling, and dredging are also considered shoreline modifications.

Generally, shoreline modification activities are undertaken for the following reasons:

1. To prepare a site for a shoreline use
2. To provide shoreline stabilization or shoreline protection
3. To support an upland use

The policies and regulations in this chapter are intended to prevent or mitigate the adverse environmental impacts of proposed shoreline modifications. General provisions, which apply to all shoreline modification activities, are followed by provisions tailored to specific shoreline modification activities. This chapter provides policies and regulations for shoreline modification features including shoreline stabilization measures and docks and floats.

If a shoreline development entails more than one shoreline modification, then all of the regulations pertaining to each type of modification apply.

Even though a shoreline modification may not require a shoreline substantial development permit, it must still conform to the regulations and standards in this SMP. The City requires that a property owner contemplating a shoreline modification contact the City's Shoreline Administrator and apply for a "letter of exemption". No shoreline modification shall be undertaken without either a shoreline permit or a letter of exemption.

B. Shoreline Modification Matrix

The following matrix (Table 4) is the shoreline modification matrix. The matrix provides the permitted, conditional, and prohibited uses in all shoreline environmental designations. The numbers in the matrix refer to footnotes which may be found immediately following the matrix. These footnotes provide additional clarification or conditions applicable to the associated modification. Where there is a conflict between the matrix and the written provisions in this Chapter, the written provisions shall apply.

Table 1. Shoreline Modification Matrix

P = May be permitted C = May be permitted as a conditional use only X = Prohibited; the use is not eligible for a variance or conditional use permit N/A = Not applicable	**Natural**	**High-Intensity**	**Urban Conservancy**	**Shoreline Residential**	**Aquatic[4]**	
Shoreline stabilization:						
Environmental restoration/enhancement	P	P	P	P	P	
Bioengineering	C	P	P	P	C	
Revetments	X	P	C	P	C	
Bulkheads	X	P	C	P	C	
Breakwaters/jetties/rock weirs/groins	X	X	X	X	X	
Dikes/levees	X	C	C	C	C	
Clearing and Grading	X	P	P	P	N/A	
Dredging	N/A	N/A	N/A	N/A	C	
Hazardous waste cleanup	P	P	P	P	P	
Fill[1]	X	P	P	P	C[2]	
Piers/docks[3]	X	P	P	P	P	
Moorage piles, mooring buoys, & permanent swim floats	X	X	X	X	X	

All shoreline modifications are subject to other provisions in this SMP. See, especially, Section C "Policies and Regulations" below.

Shoreline Modification Matrix Notes:

1. *Fill in the floodplain must meet all federal, state, and local flood hazard reduction regulations.*
2. *Fill in aquatic areas for the purposes of shoreline ecological restoration may be allowed as a permitted use if the Shoreline Administrator determines that there will be an increase in desired ecological functions.*
3. *New non-public piers and docks are prohibited on Little Pilchuck Creek and Catherine Creek.*
4. *A shoreline modification may be allowed in the Aquatic Envioronment if the chart indicates that it is allowed in both the Aquatic Environment and the adjacent upland environment.*

C. Policies and Regulations

1. General Policies and Regulations

a. Applicability

The following provisions apply to all shoreline modification activities whether such proposals address a single property or multiple properties.

b. Policies

1. Structural shoreline modifications should be allowed only where they are demonstrated to be necessary:
    a. To support or protect an allowed primary structure or a legally existing shoreline use that is in danger of loss or substantial damage, or;
    b. For reconfiguration of the shoreline to mitigate impacts or enhance the shoreline ecology.
2. The adverse effects of shoreline modifications should be reduced, as much as possible, and shoreline modifications should be limited in number and extent.
3. Allowed shoreline modifications should be appropriate to the specific type of shoreline and environmental conditions in which they are proposed.
4. The City should take steps to assure that shoreline modifications individually and cumulatively do not result in a net loss of ecological functions, as stated in WAC 173-26-231. This is to be achieved by preventing unnecessary shoreline modifications, by giving preference to those types of shoreline modifications that have a lesser impact on ecological functions, and by requiring mitigation of identified impacts resulting from shoreline modifications.
5. Where applicable, the City should base decisions on available scientific and technical information and a comprehensive analysis of site-specific conditions provided by the applicant, as stated in WAC 173-26-231.
6. Impaired ecological functions should be enhanced where feasible and appropriate while accommodating permitted uses, as stated in WAC 173-26-231. As shoreline modifications occur, the City will incorporate all feasible measures to protect ecological shoreline functions and ecosystem-wide processes.
7. In reviewing shoreline permits, the City should require steps to reduce significant ecological impacts according to the mitigation sequence in WAC 173-26-201(2)(e).

c. Regulations

1. All shoreline modification activities must be in support of a permitted shoreline use or to provide for human health and safety. Shoreline modification activities which do not support a permitted shoreline use are considered “speculative” and are prohibited by this SMP, unless it can be

demonstrated that such activities are necessary to protect human health and safety, ecological functions, and the public interest.

2. Structural shoreline modification measures shall be permitted only if nonstructural measures are unable to achieve the same purpose or are not feasible (See Chapter 6 for definition of "feasible"). Nonstructural measures considered shall include alternative site designs, increased setbacks, drainage improvements, relocation of proposed structures, and vegetation enhancement.
3. Stream channel modification (i.e., realignment) shall be prohibited as a means of shoreline stabilization or shoreline protection, unless it is the only feasible alternative and includes environmental enhancement.
4. All new shoreline development shall be located and designed to prevent or minimize the need for shoreline modification activities.
5. Proponents of shoreline modification projects shall obtain all applicable federal and state permits and shall meet all permit requirements.
6. Shoreline modification materials shall be only those approved by the City and applicable state agencies. No toxic (e.g. creosote) or quickly degradable materials (e.g., plastic or fiberglass that deteriorates under ultraviolet exposure) shall be used.
7. In channel migration zones, natural geomorphic and hydrologic processes shall not be limited and new development shall not be established where future shoreline modifications will be required and shall include appropriate protection of ecological function.

2. Shoreline Stabilization (Including Bulkheads)

a. Applicability

Shoreline stabilization includes actions taken to address erosion impacts to property, dwellings, businesses, or essential structures caused by processes, such as current, flood, wind, or wave action. Structural shoreline modifications are only allowed to protect a primary structure or legally existing shoreline use (WAC 173-26-231). These include structural and nonstructural methods.

Nonstructural methods include building setbacks, relocation of the structure to be protected, erosion and groundwater management, planning and regulatory measures to avoid the need for structural stabilization.

Structural methods include "hard" and "soft" structural stabilization measures.

Hard Structural Shoreline Stabilization means erosion control practices using hardened structures that armor and stabilize the shoreline from further erosion. Hard structural shoreline stabilization typically uses concrete, boulders, dimensional lumber or other materials to construct linear, vertical or near-vertical faces. These include bulkheads, rip-rap, groins, and similar structures.

Soft Structural Shoreline Stabilization means erosion control and restoration practices that contribute to restoration, protection or enhancement of shoreline

ecological functions. Soft shoreline stabilization typically includes a mix of gravels, cobbles, boulders, logs and native vegetation placed to provide stability in a non-linear, sloping arrangement. On lakes such as Lake Stevens, non-structural and "soft" structural stabilization measures can be cost-effective and practicable solutions.

Generally, the harder the construction measure, the greater the impact on shoreline processes, including sediment transport, geomorphology, and biological functions.

Maintenance, Repair, and Replacement WAC 173-27-040(2)(b) defines normal maintenance and repair of existing structures and notes that many maintenance and repair activities are exempt from the requirement for a shoreline substantial development permit. As indicated in that section, normal maintenance and repair actions are not exempt from substantial development permits if "by their intrinsic nature, may have a significant ecological impact on shoreline ecological functions or shoreline resources depending on location, design, and site conditions." Additions to or increases in size of existing shoreline stabilization measures shall be considered new structures.

For the purposes of this section, repair of shoreline stabilization means the strengthening or reconstruction of less than 50 percent of the length of a shoreline stabilization measure over a five-year period. Reconstruction or strengthening of more than 50 percent of the length of a shoreline stabilization structure over a five-year period constitutes replacement.

Some shoreline stabilization measures for single-family residences may be exempt from a shoreline substantial development permit in accordance with WAC 173-27-040(2). However, such measures must comply with the provisions of this SMP.

b. Policies

1. Non-structural stabilization measures are preferred over "soft" structural measures. "Soft" structural shoreline stabilization measures are strongly preferred over hard structural shoreline stabilization Proposals for hard and soft structural solutions, including bulkheads, should be allowed only when it is demonstrated that nonstructural methods are not "feasible", as defined in Chapter 6. Hard structural shoreline stabilization measures should be allowed only when it is demonstrated that soft structural measures are not feasible.
2. Bulkheads and other structural stabilizations should be located, designed, and constructed primarily to prevent damage to existing primary structures and minimize adverse impacts to ecological functions.
3. New development requiring bulkheads and/or similar protection to protect a primary structure should not be allowed. Shoreline uses should be located in a manner so that bulkheads and other structural stabilization are not likely to become necessary in the future.

4. Shoreline modifications individually and cumulatively shall not result in a net loss of ecological functions. This is to be achieved by giving preference to those types of shoreline modifications that have a lesser impact on ecological functions and requiring mitigation of identified impacts resulting from shoreline modifications.

c. Regulations

New Development

1. New primary structures shall, where feasible, be located and designed to eliminate the need for concurrent or future shoreline stabilization. New non-water dependent primary structures that would require shoreline stabilization that would cause significant adverse impacts to adjacent or down-current properties or restrict channel migration in Channel Migration Zones is prohibited.
2. New primary structures, including single-family residences, which include structural shoreline stabilization, will not be allowed unless all of the conditions below are met:
    a. The need to protect the primary structure from damage due to erosion caused by natural processes, such as currents, waves, and by manmade processes such as boat wakes, is demonstrated through a geotechnical report.
    b. The erosion is not being caused by upland conditions, such as loss of vegetation and drainage.
    c. Nonstructural measures, such as placing the primary structure farther from the shoreline, planting vegetation, low impact development measures, or installing on-site drainage improvements, are not feasible or not sufficient.
    d. The structure will not result in a net loss of shoreline ecological functions.
3. New primary structures on steep slopes or bluffs shall be set back sufficiently to ensure that shoreline stabilization will not be needed during the life of the structure, as demonstrated by a geotechnical analysis by a geotechnical engineer or related professional licensed and in good standing in the State of Washington.

New or expanded shoreline stabilization measures

4. New stabilization measures are not allowed except to protect or support an existing or approved primary structure, as necessary for human safety, for the restoration of ecological functions, or for hazardous substance remediation pursuant to Chapter 70.105D RCW. The construction of a bulkhead for the primary purpose of retaining or creating dry land that is not specifically authorized as a part of the permit is prohibited.
5. New or replacement structural shoreline stabilization measures are allowed on Catherine Creek and Little Pilchuck Creek shorelines for necessary flood hazard reduction provided that all feasible steps are taken to minimize adverse

impacts to the natural environment. The structures must be in conformance with a City-approved flood hazard reduction program.

6. New or enlarged structural shoreline stabilization measures for a primary structure or residence shall not be allowed unless there is conclusive evidence, documented by a geotechnical analysis (see definition in Chapter 6), that the structure is in danger from shoreline erosion caused by currents, waves, or boat wakes. Normal sloughing, erosion of steep bluffs, or shoreline erosion itself, without a scientific or geotechnical analysis by a licensed geotechnical engineer or related licensed professional, is not demonstration of need. The geotechnical report must demonstrate that erosion rates projected within three years would result in damage to an existing primary structure. The report must also evaluate on-site drainage issues and address drainage problems away from the shoreline edge before considering structural shoreline stabilization. The project design and analysis must also evaluate vegetation enhancement and low impact development measures as a means of reducing undesirable erosion.
7. "Hard" structural shoreline stabilization measures, such as bulkheads, are not allowed unless the applicant can demonstrate through a geotechnical analysis that "soft" structural measures such as vegetation or beach enhancement, or nonstructural measures, such as additional building setbacks, are not feasible.
8. Where structural shoreline stabilization measures are demonstrated to be necessary, as described in subsections c.6 and 7 above, the size of stabilization measures shall be limited to the minimum necessary. The City's Shoreline Administrator may require that the proposed structure be altered in size or design or impacts otherwise mitigated. Impacts to sediment transport shall be avoided or minimized.
9. The City's Shoreline Administrator will require mitigation of adverse impacts to shoreline functions in accordance with the mitigation sequence defined in Chapter 3 Section B.4 of the General Provisions. The City's Shoreline Administrator may require the inclusion of vegetation conservation, as described in Chapter 3 Section B.11, as part of shoreline stabilization, where feasible. In order to determine acceptable mitigation, the City's Shoreline Administrator may require the applicant to provide necessary environmental information and analysis, including a description of existing conditions/ecological functions and anticipated shoreline impacts, along with a restoration plan outlining how proposed mitigation measures would result in no net loss of shoreline ecological functions.
10. Shoreline stabilization measures that incorporate ecological restoration through the placement of rocks, gravel or sand, and native shoreline vegetation may be allowed. Soft shoreline stabilization that restores ecological functions may be permitted waterward of the OHWM as long as the overriding intent is not to create dry land. Where the ecological restoration includes placement of new substrates, measures shall be taken to ensure that these substrates do not erode and reduce water depth of neighboring properties.

11. Following completion of shoreline modification activities, disturbed shoreline areas shall be restored to pre-project conditions or conditions set by the Shoreline Administrator (see regulation 9 above). Vegetation conservation measures, including the planting of native vegetation along the shoreline, may be required. Plantings shall consist of native grasses, shrubs, and trees as approved by the City's Shoreline Administrator in keeping with preexisting or typical naturally occurring bank vegetation. Vegetation shall be fully reestablished within three years. All revegetation projects shall include a program for monitoring and maintenance. Areas which fail to adequately reestablish vegetation shall be replanted with approved plants until the plantings are viable.

Replacement and Repair

12. An existing shoreline stabilization structure shall not be replaced with a similar structure unless there is need to protect primary structures from erosion caused by currents or waves and a nonstructural measure is not feasible. At the discretion of the City's Shoreline Administrator, the demonstration of need does not necessarily require a geotechnical report by a geotechnical engineer or related professional licensed and in good standing in the State of Washington. The replacement structure shall be designed, located, sized, and constructed to minimize harm to ecological functions.

    Replacement walls or bulkheads shall not encroach waterward of the OHWM or existing structures unless the residence was occupied prior to January 1, 1992, and there are overriding safety or environmental concerns. In such cases, the replacement structure shall abut the existing shoreline stabilization structure.When an existing bulkhead is being repaired or replaced by construction of a vertical wall fronting the existing wall (as noted in the exceptions above), it shall be constructed no farther waterward of the existing bulkhead than is necessary for construction of new footings. When a bulkhead has deteriorated such that an OHWM has been established by the presence and action of water landward of the bulkhead, then the replacement bulkhead must be located at or near the actual OHWM.

Design of Shoreline Stabilization Measures

13. Bulkhead design and development shall conform to all other applicable City and state agency policies and regulations, including the Washington State Department of Fish and Wildlife criteria governing the design of bulkheads.

14. Gabions (wire mesh filled with concrete or rocks) are prohibited, except as a conditional use where it is determined that gabions are the least environmentally disruptive method of shoreline stabilization.

15. Stairs and other allowed structures may be built as integral to a bulkhead but shall not extend waterward of the bulkhead or structure unless it is necessary to access the shoreline or a use or structure is otherwise allowed over water.

16. Bulkheads shall be designed to permit the passage of surface water or groundwater without causing ponding or over-saturation of retained soil/materials of lands above the OHWM.

17. Adequate toe protection and proper footings shall be provided to ensure bulkhead stability without relying on additional riprap.

18. Materials and dimensional standards:

    a. New bulkheads and other shoreline stabilization structures shall not be constructed higher than 24 inches (twenty-four inches) above the OHWM or, if the bulkhead is set back from the shoreline, 24 inches above grade at the base of the bulkhead or structure. On steep slopes, new bulkheads may be built taller than 24 inches high if necessary to meet the existing slope. Replacement bulkheads may be built to the height of the original bulkhead.

       Exception: The City's Shoreline Administrator may waive this provision for flood hazard minimization measures conforming to this SMP.

    b. While structural materials are not the preferred method of shoreline stabilization, if structural shoreline measures are allowed according to subsections c.6 and 7 above, the following are examples of acceptable materials for shoreline stabilization structures, listed in order of preference from top to bottom:
       i. Large stones, with vegetation planted in the gaps. Stones should not be stacked steeper than 2 horizontal to 1 vertical slope.
       ii. Timbers or logs. Note the prohibition against toxic wood treatments.
       iii. Stacked masonry units (e.g., interlocking cinder block wall units).
       iv. Cast-in-place reinforced concrete.

    c. The following materials are not acceptable for shoreline stabilization structures:
       i. Degradable plastics and other nonpermanent synthetic materials.
       ii. Sheet materials, including metal, plywood, fiberglass, or plastic.
       iii. Broken concrete, asphalt, or rubble.
       iv. Car bodies, tires or discarded equipment.

19. Fill behind bulkheads shall be limited to an average of 1 cubic yard per running foot of bulkhead. Any filling in excess of this amount shall be considered landfill and shall be subject to the provisions for landfill and the requirement for obtaining a shoreline substantial development permit.

Bioengineering

20. Bioengineering projects shall use native trees, shrubs, and grasses or ground cover, unless such an approach is not feasible.

21. All bioengineering projects shall include a program for monitoring and maintenance.

3. Over-Water Structures - Including Piers and Docks, Floats, and Boardwalks

a. Applicability

Over-water structures for moorage, boat-related, float plane-related, and other direct water-dependent uses or development, including docks, piers, boat launches, and swimming/diving platforms, inflatable recreational equipment, as well as public access boardwalks, fishing piers, and viewpoints, in shoreline areas shall be subject to the following policies and regulations. All over-water structures shall also conform to all applicable state and federal requirements.

b. Policies

1. Moorage associated with a single-family residence is considered a water-dependent use provided that it is designed and used as a facility to access watercraft (including float planes).
2. New moorage, excluding docks accessory to single-family residences, should be permitted only when the applicant/proponent has demonstrated that a specific need exists to support the intended water-dependent or public access use. To demonstrate "need", the applicant shall provide a statement of intent that clearly shows the intent to provide for a water-dependent or public access use as well as the provision of all other services and support (e.g. utilities, access, etc.) needed for the intended use.
3. To minimize continued proliferation of individual private moorage, reduce the amount of over-water and in-water structures, and reduce potential long-term impacts associated with those structures, shared moorage facilities are preferred over single-user moorage. New subdivisions of more than two (2) lots and new multi-family development of more than two (2) dwelling units should provide shared moorage.
4. Docks, piers, and other water-dependent use developments including those accessory to single-family residences, should be sited and designed to avoid adversely impacting shoreline ecological functions or processes, and should mitigate for any unavoidable impacts to ecological functions.
5. Moorage and other water-dependent use developments should be spaced and oriented in a manner that minimizes hazards and obstructions to public navigation rights and corollary rights thereto such as, but not limited to, fishing, swimming and pleasure boating.
6. Moorage and other water-dependent use developments should be restricted to the minimum size necessary to meet the needs of the proposed use. The length, width and height of over-water structures and other developments regulated by this section should be no greater than that required for safety and practicality for the primary use.
7. Moorage and other water-dependent use developments should be constructed of materials that will not adversely affect water quality or aquatic plants and animals in the long term.

c. Regulations

General Regulations for Private and Public Structures

1. All new, reconstructed, repaired, or modified over-water structures shall be allowed only in support of an allowed water-dependent use and must comply with all other regulations as stipulated by State and Federal agencies. Non-water-dependent uses may use a dock constructed for a water-dependent use as long as they do not impede the water-dependent use. Over-water structures built solely for the purpose of a non-water-dependent use are prohibited.
2. All moorage and other over-water structures shall be designed and located so as not to constitute a hazard to navigation or other public uses of the water.
3. Proposed private over-water structures which do not comply with the dimensional standards contained in this chapter may only be approved if they obtain a shoreline variance. (See Chapter 7 Section D)
4. No portion of the deck of a pier shall, during the course of the normal fluctuations of the elevation of the waterbody, protrude more than three (3) feet above the OHWM. Temporary cabanas without a permanent frame and diving boards over 3 feet in height may be allowed. Temporary structures are allowed for only five months of the year (May 1 – September 30).
5. Docks, piers, and other developments for water-dependent uses shall be located at least ten (10) feet from the extended side property lines (extended at the same angle as the property line on shore), except for joint use structures. Where a ten (10) foot setback is not feasible, as determined by the Shoreline Administrator, a five (5) foot setback from the side property line may be permitted. All over-water structures shall be configured to minimize interference with rights of navigation.
6. No residential use may occur over water, including houseboats, live-aboards, or other single- or multi-family dwelling units.
7. Only piers and ramps are permitted in the first 30 feet of the OHWM. All ells and fingers must be at least 30 feet waterward of the OHWM.
8. All pier and dock dimensions shall be minimized to the maximum extent feasible. The proposed length must be the minimum necessary to support the intended use.
9. Skirting that extends to the water is not permitted on any structure except to contain or protect floatation material.
10. All piers, docks, and similar structures shall be designed and located to float at all times on the surface of the water. Floating structures shall at no time rest on the lake substrate.
11. All over-water structures and other water-dependent use developments shall be constructed and maintained in a safe and sound condition. Abandoned or unsafe structures shall be removed or repaired promptly by the owner.
12. Lighting associated with over-water structures shall be beamed, hooded or directed to avoid causing glare on adjacent properties or waterbodies.

Illumination levels shall be the minimum necessary for safety, no more than 1 footcandle measured 10 feet from the source. All lights shall be shielded and light directed to prevent directly lighting the water surface and light shining toward the uplands.

13. Piles, floats and other overwater structures that are in direct contact with water or over water shall not be treated or coated with herbicides, fungicides, paint, or pentachlorophenol. Use of wood members treated with arsenate compounds or creosote is prohibited.
14. Temporary moorages shall be permitted for vessels used in the construction of shoreline facilities. The design and construction of temporary moorages shall be such that upon termination of the project, the aquatic habitat in the affected area can be returned to its original (pre-construction) condition within one (1) year at no cost to the environment or the public.
15. New covered moorage, boathouses, or other walled covered moorage are prohibited. Covered boat lifts in conformance with other provisions in this section may be allowed. The nonconforming use clause in Chapter 7 Section G shall apply to existing enclosed moorage structures.
16. If a dock is provided with a safety railing, such railing shall not exceed 36 inches in height and shall be an open framework that does not unreasonably interfere with shoreline views of adjoining properties.
17. Moorage facilities shall be marked with reflectors, or otherwise identified to prevent unnecessarily hazardous conditions for water surface users during the day or night. Exterior finish shall be generally non-reflective.

<u>New Private, Non-Commercial Piers</u>
Regulations 18 – 30 below apply specifically to residential and private recreational properties not used for commercial purposes.

18. A new private pier or dock may be permitted on lots owned for residential or for private recreational use, provided:
    a. The applicant has demonstrated a need for moorage.
    b. No more than one (1) pier is permitted for each single-family residence or private recreational lot not used for commercial purposes. .
    c. On waterfront lots subdivided to create additional waterfront lots, upland lots with waterfront access rights, or lots with waterfront multi-family development, joint-use piers shall be required.
19. A new, joint-use pier may be permitted on a community recreation lot shared by a number of waterfront or upland lots provided the applicant has demonstrated a need for moorage or other allowed water-dependent use.
20. New floating docks located within the first 30 feet of shoreline, measured waterward of the OHWM, are prohibited except where the float is located in water at least six (6) feet in depth, measured from the OHWM. Piers that terminate in a waterward float are allowed; provided that the landward edge of the float is over water with a depth of six (6) feet or more, measured from the

OHWM, or is at least 30 feet waterward of the OHWM. All float tubs shall be fully encapsulated.

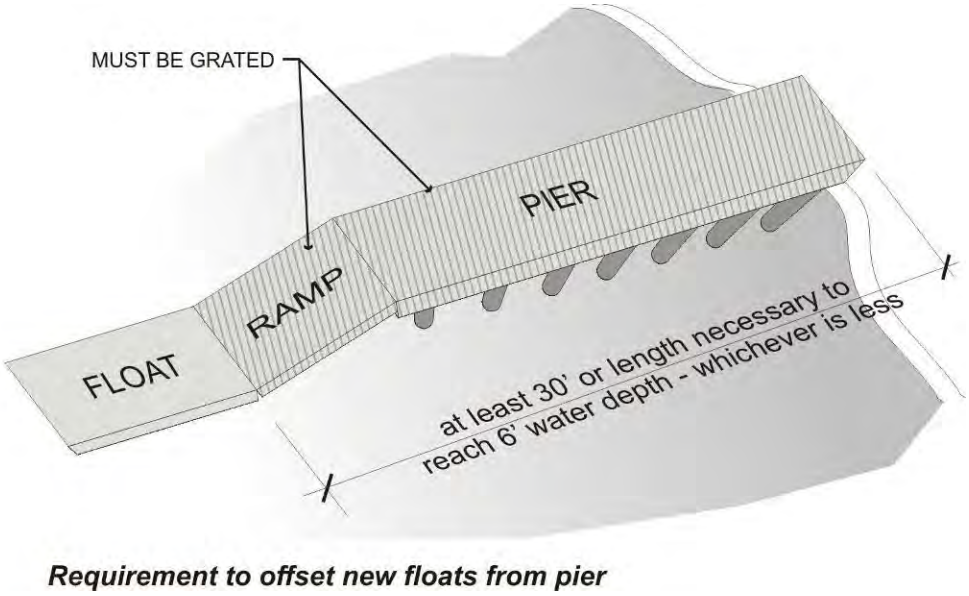


Figure 1. Pier approach length. (See regulation 4.C.3.c.20.)

21. Development Standards for New Docks

    a. Length.

        i. The maximum waterward intrusion of any portion of the dock shall not extend beyond the average of the two most adjacent legally existing docks within 300 feet on either side of the proposed dock. If no legal docks exist within 300 feet, the maximum length of the dock is the minimum necessary to reach a 5 ½ -foot water depth below the OHWM.

        Exception: If the above dock limits do not allow the dock to reach an adequate depth to moor a boat, the Shoreline Administrator may approve a longer dock up to the minimum necessary to reach 5½ feet of depth, as measured from the OHWM. However, in no case shall a dock extend more than 200 feet from the shoreline, measured perpendicularly to the shoreline.

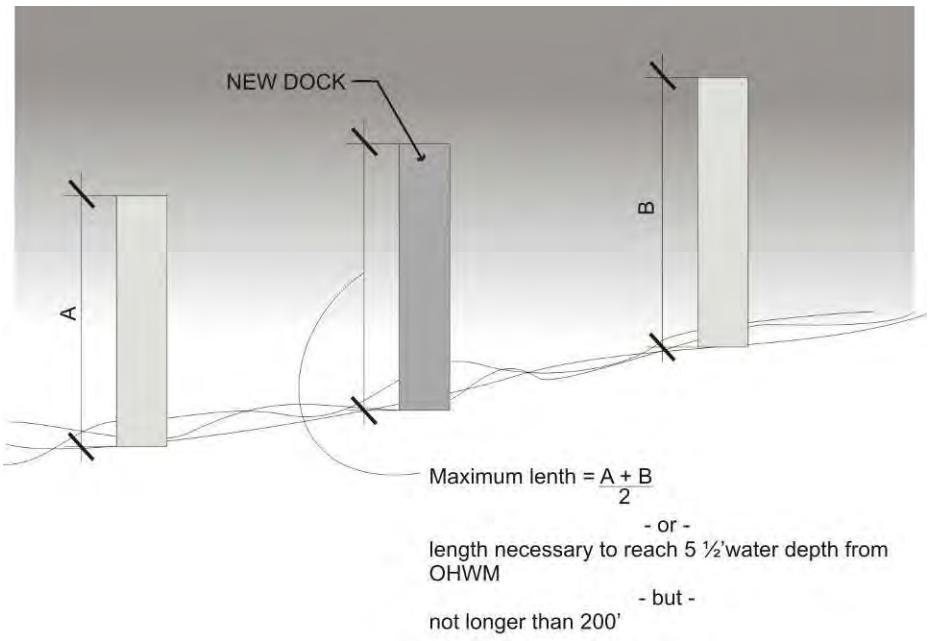


Figure 2. Allowable length of new docks. (See regulation 4.C.3.c.21.a.i.)

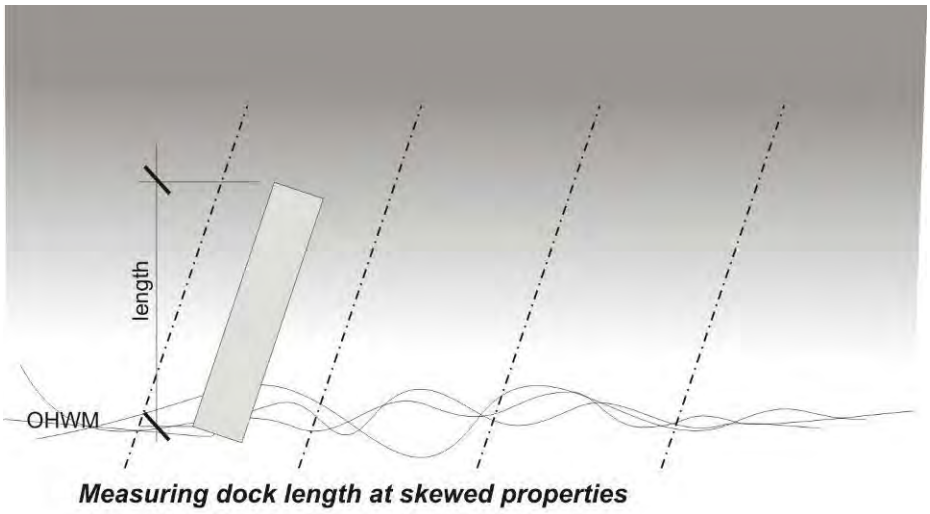


Figure 3. Dock length measurement.

ii. The maximum length of ells, fingers, and floats is 20 feet. Additionally, the maximum extent of all piers, docks and floats as measured perpendicular to the shoreline shall not be greater than 50 percent of the lot width measured along the shoreline.

b. Width.

i. The maximum width of a dock walkway is 4 feet for the first 30 feet from shore and up to 6 feet for portions of walkways which extend more than 30 feet from the shore.

a) Exceptions:

Provided the applicant receives Washington Department of Fish and Wildlife (WDFW) Hydraulic Project Approval (HPA), the

maximum width of the dock in the nearshore 30 feet can extend up to:

1) 6 feet if the docks are only linear and do not terminate in an ell, float, or other non-linear configuration OR the dock is grated for the entire portion of the dock.
2) 8 feet if the dock is only linear and does not terminate in an ell, float, or other non-linear configuration, the entire dock is grated, AND two native, evergreen trees are planted along the shoreline within ten feet of the dock. The trees shall be a minimum of fifteen feet tall at the time of planting.

ii. The maximum width of ells and floats is 6 feet. Ells and floats shall be positioned beyond 30 feet from shore or the distance at which the water depth at the OHWM is 6 feet or greater, whichever comes first.

iii. Any additional fingers must be no wider than 2 feet.

iv. The maximum width of a ramp connecting a dock to a float is 4 feet.

c. Decking: All new docks must be fully grated within 30 feet of the shoreline. Decking shall have a minimum open space of 40 percent. (See regulations C.3.c.25 to 28 for dock repair requirements.)

d. Piles. Piles shall be either steel, PVC, or untreated wood and shall be spaced a minimum of 12 feet apart, except when shown not to be feasible for site-specific engineering or design considerations.

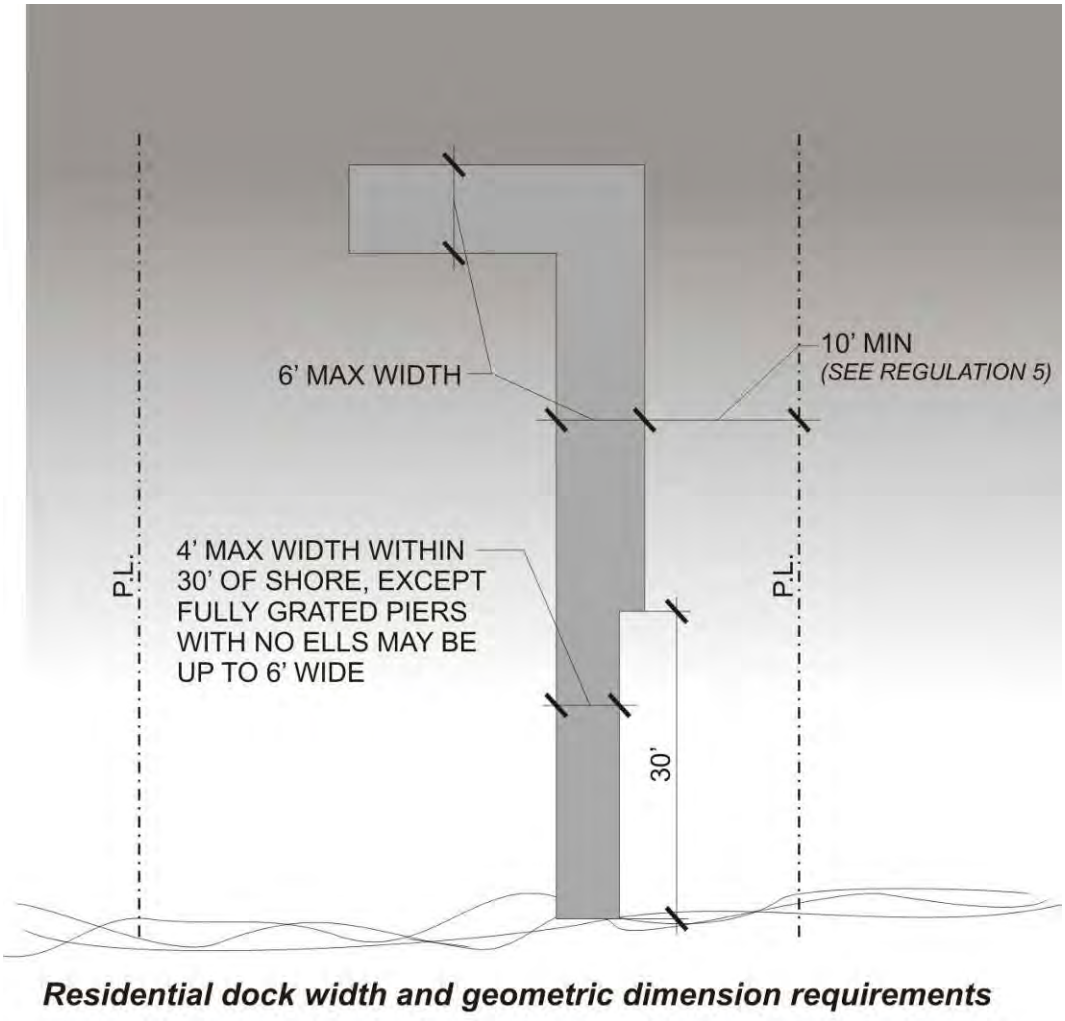


Figure 4. Other dock dimensional standards. (See regulation 4.C.3.c.21.)

Replacement of Existing Private Pier or Dock

22. Proposals involving replacement of the entire private pier or dock, or 50 percent or more of the pier-support piles can be replaced up to 100% of the size (square footage) of the existing pier or dock and shall comply with the following standards:

    a. Decking: All replacement piers must be grated as described in subsection C.21.c. above.

    b. Replacement piles must be sized as described above under 21.d, and must achieve the minimum 12-foot spacing to the extent allowed by site-specific engineering or design considerations.

Additions to Private Pier or Dock

23. Additions to existing, legally conforming piers or docks may be permitted up to the size allowed for new piers as described in subsection 4.C.3.c.21. provided any additions in the nearshore 30 feet are grated. If the existing dock's dimensions are non-conforming, additions are prohibited.

24. When proposed additions to a private residential pier result in a pier that exceeds the maximum total length or width allowances for new docks as described in 4.C.3.c.21, the addition may be proposed under a Variance application and subject to the following provisions:
    a. The applicant must remove any in-water structures rendered obsolete by the addition;
    b. The additional length of walkway or ell must be no wider than 6 feet;
    c. The decking of all new pier elements must be grated as described in subsection C.21.c. above; and
    d. Any proposed new piles must comply with standards under subsection C.21.d. above.

Repair of Existing Private Pier or Dock

25. Repair proposals which replace less than 50 percent of the existing pier-support piles must comply with the following:
    a. If the width of pier element is wider than 6 feet in the area where the piles will be replaced, the decking that would be removed in order to replace the piles shall be replaced with grated decking as described in subsection C.21.c. above.
    b. Replacement piles must be sized as described under subsection C.21.d. above, and must achieve the minimum 12-foot spacing to the extent allowed by site-specific engineering or design considerations.
26. Repair proposals which replace 50 percent or more of the decking on any pier element (i.e., pier walkway, ell, etc.) greater than 6 feet wide must use grated decking for the entire portion of that element that is wider than 6 feet as described in subsection C.21.c. above.
27. Other repairs to existing legally established moorage facilities where the nature of the repair is not described in the above subsections shall be considered minor repairs and are permitted, consistent with all other applicable codes and regulations.
28. If a single-family residence has two or more existing docks and one requires replacement or repair as described in regulations C.3.c.22 to .26, then one dock must be removed as a condition of the repair. The remaining dock may be improved to the same dimensions as either existing dock.
29. If the cumulative repair proposed over a three-year period exceeds thresholds established in subsection c.22 above, the current repair proposal shall be reviewed under subsection c.22 above.

Jet Ski Lifts, Boatlifts, Boatlift Canopies, and Covered Moorage (see also regulation C.3.c.5)

30. Boatlifts and boatlift canopies may be permitted as an accessory to residential development provided that:

a. Jet ski lifts are movable equipment employed to temporarily lift jet skis above the water for protection and storage.

b. Boatlifts are movable equipment employed to temporarily lift boats above the water for protection and storage. Residential piers may have one boatlift per single-family lot having legal use of the structure.

c. All lifts are placed as far waterward as feasible and safe, within the limits of the dimensional standards for docks in this chapter.

d. Boatlift canopies (covers over the raised boat) must not be constructed of permanent structural material. The bottom of a boatlift canopy is elevated above the boatlift to the maximum extent practicable, the lowest edge of the canopy must be at least 4 feet above the ordinary high water mark, and the top of the canopy must not extend more than 8 ½ feet above the adjacent pier.

e. Boatlift canopies must be made of fabric material.

f. Any platform lifts are fully grated.

g. The lifts and canopies comply with all other regulations as stipulated by State and Federal agencies.

Boat Launching Facilities

31. The maximum waterward intrusion of any portion of any launching ramp or lift station shall be the point where the water depth is six (6) feet below the ordinary high water mark.

32. Boat ramps are only permitted for public access, public or joint recreational uses, and emergency access. Any asphalt or concrete launch that solidly covers the substrate below the ordinary high water mark are not permitted accessory to private residential uses.

33. Launching rails are prohibited.

Recreational Floats/Swim Platforms

34. New recreational floats and swimming platforms for private properties are prohibited. Temporary inflatable recreational equipment (e.g., floating trampolines) may be permitted from May1 through September 30.

Public and Commercial Over-Water Structures – including Docks and Piers

35. Existing public and commercial over-water structures such as docks, piers, or boardwalks may be repaired and/or replaced in the same location as the existing structure.

36. Public and commercial over-water structures may be expanded in size subject to the following:

a. The existing structure is not large enough to support the intended use.

b. The applicant must remove any in-water structures rendered obsolete by the expansion (e.g., portions of an existing dock that are no longer needed must be removed).

c. Piles. Piles shall be either PVC, steel, or untreated wood and shall be spaced a minimum of 12 feet apart except when shown not to be feasible for site-specific engineering or design considerations.

d. At no point shall any new portion of the pier exceed 12 feet in width.

e. All new dock portions shall be grated.

f. The length of the pier is the minimum necessary to accommodate the intended public usage of the pier.

37. New public docks or piers may be permitted if increased public usage of existing structures has required the need for additional over-water cover. For new public docks or piers, floating piers located in the first 30 feet may be allowed as a conditional use if it is found to be necessary to support the launching of small watercraft (such as canoes, kayaks, or rowing shells).

38. New public and commercial over-water structures shall be subject to the standards under 36.c through f above.

4. Fill

a. Applicability

Fill is the addition of soil, sand, rock, gravel, sediment, earth retaining structure, or other material to an area waterward of the OHWM, in wetlands, or on shorelands in a manner that raises the elevation or creates dry land. Any fill activity conducted within shoreline jurisdiction must comply with the following provisions.

b. Policies

1. Fills waterward of OHWM should be allowed only when necessary to support allowed water-dependent or public access uses, cleanup and disposal of contaminated sediments, and other water-dependent uses that are consistent with this SMP.

2. Shoreline fill should be designed and located so there will be no significant ecological impacts and no alteration of local currents, surface water drainage, channel migration, or flood waters which would result in a hazard to adjacent life, property, and natural resource systems.

c. Regulations

1. Fill waterward of OHWM requires a conditional use permit and may be permitted only when:

   a. In conjunction with a water-dependent or public use permitted by this SMP;

b. In conjunction with a levee, bridge, or navigational structure for which there is a demonstrated public need and where no feasible upland sites, design solutions, or routes exist; or

c. As part of an approved shoreline restoration project.

2. Waterward of OHWM, pile or pier supports shall be utilized whenever feasible in preference to fills. Fills for approved road development in floodways or wetlands shall be permitted only if pile or pier supports are proven not feasible.

3. Fills are **prohibited** in floodplains where they would alter the hydrologic characteristics, flood storage capacity, or inhibit channel migration that would, in turn, increase flood hazard or other damage to life or property. Fills are **prohibited** in floodway, except when approved by conditional use permit and where required in conjunction with a proposed water-dependent or other use specified in subsection 4.c.2 above.

4. Fill shall be permitted only where it is demonstrated that the proposed action will not:

   a. Result in significant ecological damage to water quality, fish, shellfish, and/or wildlife habitat; or

   b. Adversely alter natural drainage and circulation patterns, currents, river flows or significantly reduce flood water capacities.

   c. Alter channel migration, geomorphic, or hydrologic processes.

5. Environmental cleanup action involving excavation/fill, as authorized by the City's Shoreline Administrator, may be permitted.

6. Sanitary fills shall not be located in shoreline jurisdiction.

7. Fills waterward of the ordinary high water mark that are for the purpose of restoring ecological functions are a permitted use and do not require a conditional use permit.

5. Dredging and Disposal

a. Applicability

Dredging is the removal or displacement of earth or sediment (e.g., gravel, sand, mud, silt and/or other material or debris) from a stream, river, lake, marine water body, or associated marsh, bog or swamp. Activities which may require dredging include the construction and maintenance of navigation channels, levee construction, recreation facilities, boat access, and ecological restoration.

Dredge material disposal is the depositing of dredged materials on land or into water bodies for the purpose of either creating new or additional lands for other uses or disposing of the by-products of dredging.

b. Exemptions

Pursuant to WAC 173-27-040, dredging or dredge disposal actions may be exempt from the requirement for a shoreline substantial development permit, but may still require a conditional use or variance permit.

c. Policies

1. Dredging operations should be planned and conducted to minimize interference with navigation and adverse impacts to other shoreline uses, properties, and values.
2. When allowed, dredging and dredge material disposal should be limited to the minimum amount necessary.
3. Disposal of dredge material within a channel migration zone shall be discouraged.

d. Regulations

General

1. Dredging and dredge disposal shall be permitted only where it is demonstrated that the proposed actions will not:
    a. Result in significant or ongoing damage to water quality, fish, and shoreline habitat;
    b. Adversely alter natural drainage and circulation patterns, currents, river flows, channel migration processes or significantly reduce flood water capacities; or
    c. Cause other significant ecological impacts.
2. Proposals for dredging and dredge disposal shall include all feasible mitigating measures to protect marine habitats and to minimize adverse impacts such as turbidity, release of nutrients, heavy metals, sulfides, organic material or toxic substances, dissolved oxygen depletion, disruption of food chains, loss of benthic productivity and disturbance of fish runs and important localized biological communities.
3. Dredging and dredge disposal shall not occur in wetlands, except as authorized by conditional use permit as a shoreline restoration project.
4. Dredging and dredge disposal shall be carefully scheduled to protect ecological function (e.g., fish runs, spawning, benthic productivity, etc.) and to minimize interference with fishing activities.
5. Dredging and dredge disposal shall be prohibited on or in archaeological sites that are listed on the Washington State Register of Historic Places until such time that they have been released by the State Archaeologist.
6. Dredging shall utilize techniques which cause minimum dispersal and broadcast of bottom material.
7. Dredging shall be permitted only:
    a. For navigation or navigational access and recreational access;

b. In conjunction with a water-dependent use of water bodies or adjacent shorelands;

c. As part of an approved habitat improvement project;

d. To improve water quality;

e. In conjunction with a bridge, navigational structure or wastewater treatment facility for which there is a documented public need and where other feasible sites or routes do not exist;

f. To improve water flow or manage flooding only when consistent with an approved flood/stormwater comprehensive management plan; or

g. To clean up contaminated sediments.

8. When dredging is permitted, the dredging shall be the minimum necessary to accommodate the proposed use.

9. New dredging activity is prohibited:

   a. In shoreline areas with bottom materials which are prone to significant sloughing and refilling due to currents, resulting in the need for continual maintenance dredging, except by conditional use permit; and

   b. In habitats identified as critical to the life cycle of officially designated or protected fish, shellfish or wildlife.

10. Dredging for the primary purpose of obtaining material for landfill is prohibited.

11. New development shall be located and designed to avoid or minimize the need for new or maintenance dredging where feasible.

12. Maintenance dredging of established navigation channels, public access facilities and basins is restricted to maintaining previously dredged and/or existing authorized location, depth, and width.

<u>Regulations -- Dredge Material Disposal</u>

13. Depositing clean dredge materials in water areas shall be allowed only by conditional use permit for one or more of the following reasons:

    a. For wildlife habitat improvement or shoreline restoration; or

    b. To correct problems of material distribution adversely affecting fish and wildlife resources.

14. Where the City's Shoreline Administrator requires, revegetation of land disposal sites shall occur as soon as feasible in order to retard wind and water erosion and to restore the wildlife habitat value of the site. Native species and other compatible plants shall be used in the revegetation.

15. Proposals for disposal in shoreline jurisdiction must show that the site will ultimately be suitable for a use permitted by this SMP.

16. The City's Shoreline Administrator may impose reasonable limitations on dredge disposal operating periods and hours and may require provision for

buffers at land disposal or transfer sites in order to protect the public safety and other lawful interests from unnecessary adverse impacts.

17. Disposal of dredge material within a channel migration zone shall require a conditional use permit.

6. Shoreline Restoration and Ecological Enhancement

a. Applicability

Shoreline restoration and ecological enhancement are the improvement of the natural characteristics of upland or submerged shoreline using native materials. The materials used are dependent on the intended use of the restored or enhanced shoreline area. An Ecological Restoration Plan accompanies this SMP and recommends ecological enhancement and restoration measures.

b. Policies

1. The City should consider shoreline enhancement as an alternative to structural shoreline stabilization and protection measures where feasible.
2. All shoreline enhancement projects should protect the integrity of adjacent natural resources including aquatic habitats and water quality.
3. Where possible, shoreline restoration should use maintenance-free or low-maintenance designs.
4. The City should pursue the recommendations in the shoreline restoration plan prepared as part of this SMP update. The City should give priority to projects consistent with this plan.
5. Shoreline restoration and enhancement should not extend waterward more than necessary to achieve the intended results.

c. Regulations

1. Shoreline enhancement may be permitted if the project proponent demonstrates that no significant change to sediment transport or river current will result and that the enhancement will not adversely affect ecological processes, properties, or habitat.
2. Shoreline restoration and enhancement projects shall use best available science and management practices.
3. Shoreline restoration and enhancement shall not significantly interfere with the normal public use of the navigable waters of the state without appropriate mitigation.
4. Shoreline restoration and ecological enhancement projects may be permitted in all shoreline environments, provided:
    a. The project's purpose is the restoration of natural character and ecological functions of the shoreline, and
    b. It is consistent with the implementation of a comprehensive restoration plan approved by the City's Shoreline Administrator, or the City's

Shoreline Administrator finds that the project provides an ecological benefit and is consistent with this SMP.

7. Dikes and Levees

a. Applicability

Dikes and levees are manmade earthen embankments utilized for the purpose of flood control, water impoundment projects, or settling basins.

b. Policies

1. Dikes and levees should be constructed or reconstructed only as part of a comprehensive flood hazard reduction program
2. Environmental enhancement measures should be a part of levee improvements.

c. Regulations

1. Dikes and levees shall be designed, constructed, and maintained in accordance with Washington State Department of Fish and Wildlife Hydraulic Project Approval, federal levee criteria, and in consideration of resource agency recommendations.
2. Dikes and levees shall protect the natural processes and resource values associated with streamways and deltas, including, but not limited to, wildlife habitat.
3. Dikes and levees shall be limited in size to the minimum height required to protect adjacent lands from the projected flood stage.
4. Dikes and levees shall not be placed in the floodway, except for current deflectors necessary for protection of bridges and roads.
5. Public access to shorelines should be an integral component of all levee improvement projects. Public access shall be provided in accordance with public access policies and regulations contained herein.
6. Dikes and levees shall only be authorized by conditional use permit and shall be consistent with "The Flood Insurance Study for Snohomish County, Washington and Incorporated Areas," dated September 16, 2005, as amended.
7. Dikes and levees shall be set back at convex (inside) bends to allow streams to maintain point bars and associated aquatic habitat through normal accretion, if feasible.
8. Proper diversion of surface discharge shall be provided to maintain the integrity of the natural streams, wetlands, and drainages.
9. Underground springs and aquifers shall be identified and protected.
10. Where feasible, the construction, repair, or reconstruction of dikes or levees shall include environmental restoration. The Lake Stevens Restoration Plan accompanying this SMP provides guidance the City's Shoreline Administrator will use in determining the amount and type of restoration required.

CITY OF LAKE STEVENS
GRANT NO. G1000027

CUMULATIVE IMPACTS ANALYSIS
for City of Lake Stevens Shorelines: Lake Stevens, Catherine Creek, and Little Pilchuck Creek

Prepared for:

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ATTACHMENT 3

ATTACHMENT 3

ATTACHMENT 3

TABLE OF CONTENTS

Page #

LIST OF TABLES

The Watershed Company
December 2010

CUMULATIVE IMPACTS ANALYSIS

CITY OF LAKE STEVENS SHORELINES: LAKE STEVENS, CATHERINE CREEK, AND LITTLE PILCHUCK CREEK

1 INTRODUCTION

1.1 Shoreline Management Act Requirements

The Shoreline Management Act guidelines (Guidelines) require local shoreline master programs (SMPs) to regulate new development to "achieve no net loss of ecological function." The Guidelines (WAC 173-26-186(8)(d)) state that, "To ensure no net loss of ecological functions and protection of other shoreline functions and/or uses, master programs shall contain policies, programs, and regulations that address adverse cumulative impacts and fairly allocate the burden of addressing cumulative impacts."

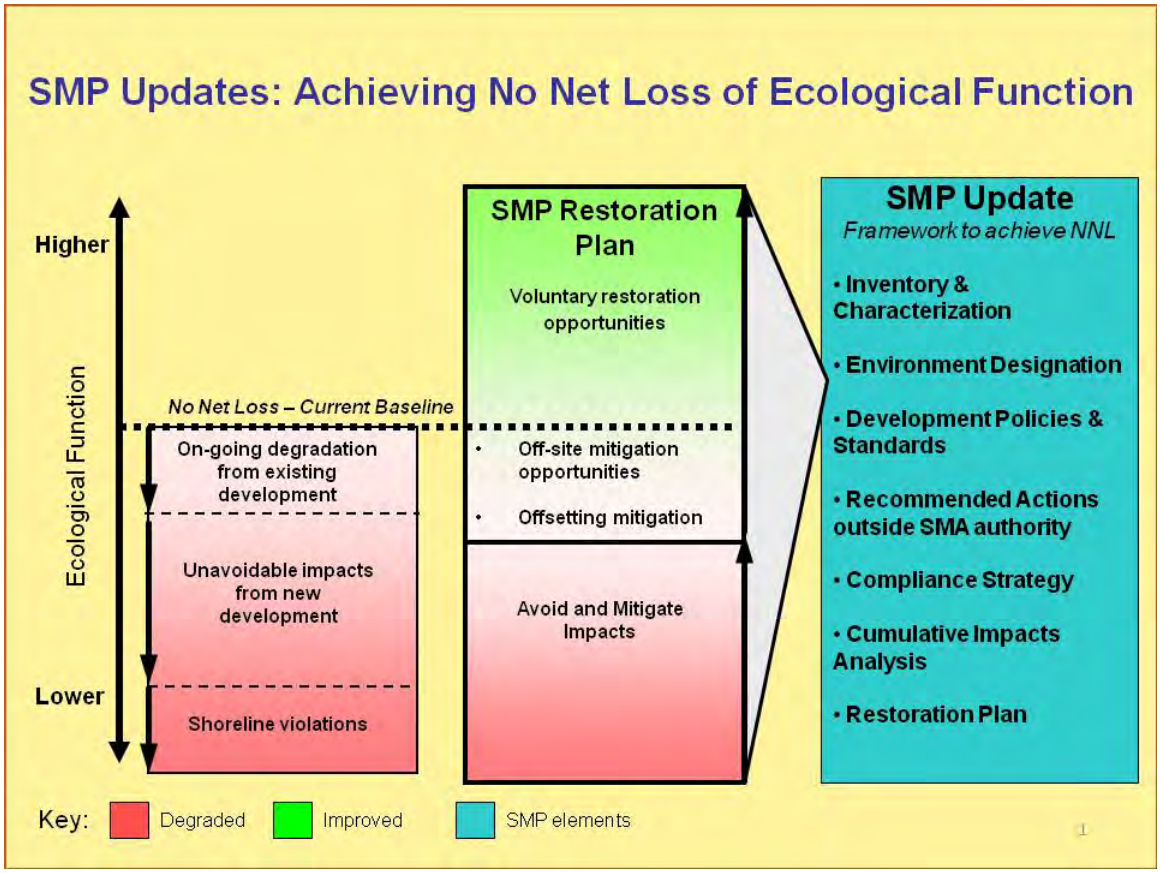
The Guidelines further elaborate on the concept of net loss as follows:

> *"When based on the inventory and analysis requirements and completed consistent with the specific provisions of these guidelines, the master program should ensure that development will be protective of ecological functions necessary to sustain existing shoreline natural resources and meet the standard. The concept of "net" as used herein, recognizes that any development has potential or actual, short-term or long-term impacts and that through application of appropriate development standards and employment of mitigation measures in accordance with the mitigation sequence, those impacts will be addressed in a manner necessary to assure that the end result will not diminish the shoreline resources and values as they currently exist. Where uses or development that impact ecological functions are necessary to achieve other objectives of RCW 90.58.020, master program provisions shall, to the greatest extent feasible, protect existing ecological functions and avoid new impacts to habitat and ecological functions before implementing other measures designed to achieve no net loss of ecological functions." [WAC 173-206-201(2)(c)]*

In short, updated SMPs shall contain goals, policies and regulations that prevent degradation of ecological functions relative to the existing conditions as documented in that jurisdiction's characterization and analysis report. For those projects that result in degradation of ecological functions, the required mitigation must return the resultant ecological function back to the baseline. This is illustrated in the figure below. The jurisdiction must be able to demonstrate that it has accomplished that goal through an

analysis of cumulative impacts that might occur through implementation of the updated SMP. WAC 173-26-186(8)(d) states "[e]valuation of such cumulative impacts should consider:

(i) current circumstances affecting the shorelines and relevant natural processes;
(ii) reasonably foreseeable future development and use of the shoreline; and
(iii) beneficial effects of any established regulatory programs under other local, state, and federal laws."



Source: Department of Ecology

As outlined in the *Shoreline Restoration Plan* (Appendix B of the SMP) prepared as part of this SMP update, the SMA also seeks to restore ecological functions in degraded shorelines. This cannot be required by the SMP at a project level, but Section 173-26-201(2)(f) of the Guidelines says: "master programs shall include goals and policies that provide for restoration of such impaired ecological functions." See the *Shoreline Restoration Plan* for additional discussion of SMP policies and other programs and activities in the City that contribute to the long-term restoration of ecological functions relative to the baseline condition.

1.2 Methodology

Using the textual, numerical and graphical information developed and presented in the *Shoreline Analysis Report*, this cumulative impacts analysis was prepared consistent with direction provided in the Guidelines as described above. To the extent that existing information was sufficiently detailed and assumptions about possible new or re-development could be made with reasonable certainty, the following analysis is quantitative. However, in many cases information about existing conditions and/or redevelopment potential was not available at a level that could be assessed quantitatively or the analysis would be unnecessarily complex to reach a conclusion that could be derived more simply. Further, ecological function does not have an easy metric. For these reasons, much of the following analysis is more qualitative.

2 EXISTING CONDITIONS

The following summary of existing conditions is based on the *Shoreline Analysis Report*. This discussion has been divided by waterbody and by proposed shoreline environment designations (see Appendix A of the SMP for a map of environment designations). Environment designations include Natural, Urban Conservancy, Shoreline Residential, High Intensity, and Aquatic. The *Shoreline Analysis Report* includes an in-depth discussion of the topics below, as well as information about transportation, stormwater and wastewater utilities, impervious surfaces, and historical/archaeological sites, among others.

2.1 Lake Stevens

The Lake Stevens shoreline in the City of Lake Stevens is primarily dominated by residential uses, although a number of parks are also present. Residential uses consist almost exclusively of single-family residences, with a smaller amount of multi-family residences currently present. Residential and parks uses are designated Shoreline Residential and Urban Conservancy, respectively. In addition, there are two separate areas of wetland complexes associated with Lake Stevens (Stevens Creek and Stitch Lake wetland complexes). Both complexes are almost completely undeveloped and are designated Natural.

The City's Lake Steven's shoreline (including wetland complexes) has been divided into three assessment units based on variations in land use and shore topography. Land use conditions in each assessment unit can be found in Table 8 of the *Shoreline Analysis Report*. Detailed information about existing functions, including a performance rating of individual reach functions, can be found in the *Shoreline Analysis Report*, Section 4.3.

2.2 Catherine Creek and Little Pilchuck Creek

Shoreline jurisdiction in the City of Lake Stevens includes portions of Catherine Creek and Little Pilchuck Creek. Land uses along both streams include a mix of residential, light industrial and open space. Public access to the shoreline includes mostly passive recreation trails, with the Centennial Trail passing through the Little Pilchuck shoreline. No shoreline armoring exists and vegetative cover is over 90% in most cases, while the shoreline areas show signs of alteration and channel modification. The collective performance of functions in these shoreline areas is Moderate (see Tables 5 through 7 of the *Shoreline Analysis Report*) because of their limited vegetation, lack of significant pools, and erosion problems. Based on the planned land use and the moderate function level, these freshwater shorelines are designated as High Intensity, Shoreline Residential or Urban Conservancy.

3 DEVELOPMENT POTENTIAL

Each waterbody was divided into assessment units (see Section 3.2 of the *Shoreline Analysis Report*) based upon biological character, dominant land use, and location within City limits or the UGA. Assessment units were then assigned environment designations based upon the performance of biological functions and anticipated future land uses.

3.1 Lake Stevens

The following table is an excerpt of material included in Chapter 5 of the *Shoreline Analysis Report*.

Table 1. Likely changes in land use along the Lake Stevens shoreline.

Assessment Unit	Likely Changes in Land Use
Lake Stevens: Residential Areas – City Limits	A majority of this reach is designated Waterfront Residential, which allows single-family housing at a density of 4 dwelling units per acre. There are a few areas that are designated Medium Density Residential which allows 4 – 12 dwelling units per acre. A majority of these parcels are built out and are not likely to change use. Some redevelopment of existing housing stock may occur, but a majority of the housing stock has been built in the last few decades. There are a few vacant lots in Waterfront Residential that may develop and some areas designated Medium Density Residential that have been subdivided but have not yet been developed. For the area that was recently annexed into the City, the zoning and land use classification names changed from the County's names to the City's names, but little changed in regards to development potential.
Lake Stevens: Residential Areas – UGA	This area is currently designated Urban Low Density Residential and is zoned R-9600. Many of the single-family residences in this reach are separated from the shoreline by Lake Stevens Road. A majority of these parcels are built out and are not likely to change use, but there are a few vacant lots that have the potential to develop. Some redevelopment of existing housing stock may occur, but a majority of the housing stock has been built in the last few decades.
Lake Stevens: Open Space Areas – City Limits	There are a number of parks that are designated as Public/ Semi-Public along the Lake Stevens shoreline. (See discussion of public access sites in Section 5). These uses are not likely to change, although the Parks Department may further develop some parks. The City Hall site is also designated Public/ Semi-Public and has open space in shoreline jurisdiction. There also appears to be private community access sites along the lake (Stevens Cove Homeowners Association, Cedar Cove Homeowners Association, Sandy Beach Community Club).
Lake Stevens: Open Space Areas – UGA	There are a number of parks that are designated as public within the UGA boundary (see public access map in Appendix D). These uses are not likely to change, although the existing parks may be further developed in the future.
Lake Stevens: Commercial Areas – City Limits	There are a few areas along the lake that are designated Mixed Use or Downtown/Local Commercial. (approx. 350 linear feet on the shoreline). A small portion of this is within "Old Town" or Downtown Lake Stevens. These parcels are likely to be redeveloped or developed in accordance with the City's Downtown Plan. There is also a parcel on the west side of the lake that is designated Downtown/Local Commercial that also has the potential for redevelopment. It is approximately 195 linear feet along the shoreline.
Lake Stevens: Stevens Creek Wetland Complex	A majority of this area is designated Medium Density Residential, which allows 4 – 12 dwelling units per acre. A very small portion of jurisdiction is designated High Density Residential, which allows any form of single-family, two-family, and multi-family residential uses with no density limits. It also allows limited public/semi-public, community, recreational, and commercial uses. The area is largely undeveloped, with houses surrounding the wetland area.
Lake Stevens: Stitch Lake Wetland Complex	This area is designated Medium Density Residential, but the majority of the area is undeveloped or low density development. This area should be protected and new development should be limited. There also appears to be a parcel that is in agricultural use in this area.

3.2 Catherine Creek and Little Pilchuck Creek.

The following table is an excerpt of material included in Chapter 5 of the *Shoreline Analysis Report*.

Table 2. Likely changes in land use along the Catherine and Little Pilchuck Creek shorelines.

Assessment Unit	Likely Changes in Land Use
Catherine Creek: Residential Areas – City Limits	The residential areas along Catherine Creek are designated Medium Density Residential and are primarily built-out. Some redevelopment of existing housing stock may occur, but a majority of the houses were built within the last few decades.
Catherine Creek: Industrial – City Limits	This area is designated Light Industrial. The parcel has the potential to be developed at a higher intensity, but redevelopment will be constrained by the lack of an existing sewer system and the 150' buffer requirement.
Catherine Creek: Open Space – City Limits	This area is designated Public/ Semi-Public and consists of Catherine Creek Park. The land is currently owned by the Lake Stevens School District but is leased by the City. If the lease expires, the School District has the potential to further develop this property. The City needs to continue to work with the School District to ensure this property remains in public use.
Catherine Creek: Residential Areas – UGA	This area is designated Urban Low Density Residential and is zoned R-20,000. It has the potential to be developed at a higher intensity.
Catherine Creek: Utilities – UGA	These parcels are designated Residential, but are currently used as utility sites. These parcels could be further developed in the future, so it is important to maintain required vegetated buffers.
Little Pilchuck Creek: Residential Areas	This area is designated Urban Low Density Residential and is zoned R-20,000. The area is largely under developed and has the potential to be developed at a higher intensity.
Little Pilchuck Creek: Industrial Areas	This area is designated and zoned General Industrial, but the area in shoreline jurisdiction is largely undeveloped. This area might see new industrial uses or redevelopment of existing uses.

4 PROTECTIVE SMP PROVISIONS

4.1 Environment Designations

The first line of protection of the City's shorelines is the environment designation assignments (see Appendix A of the SMP). The Natural environment is the most restrictive, followed by the Urban Conservancy environment. Only agriculture, in-stream structures, roads, and utilities are potentially allowed through a Conditional Use process in the Natural environment, while water-dependent and water-enjoyment uses

are allowed outright. In addition, the Urban Conservancy environment allows boating and parking facilities, signage, and in some cases multi-family residential uses. In some respects, the Shoreline Residential environment is as restrictive as or more restrictive than the Urban Conservancy environment considering specific limitations to other uses. The most permissive environment is the High Intensity environment, which has been assigned to those areas that are already developed with commercial or industrial uses or prepared (cleared) for such development.

Table 3 (Tables 4 and 5 in the SMP) below identifies the prohibited and allowed uses and modifications in each of the shoreline environments, and clearly shows a hierarchy of higher-impacting uses and modifications being allowed in the already highly altered shoreline environments, with uses more limited in the less developed areas. This strategy helps to minimize cumulative impacts by concentrating development activity in lower functioning areas that are not likely to experience function degradation with incremental increases in new development.

Table 3. Shoreline Use and Modification Matrix (from Tables 4 and 5 of the Shoreline Master Program)

The chart is coded according to the following legend. P = Permitted, when meeting requirements for that use and shoreline area, may be subject to Shoreline Substantial Development Permit or shoreline exemption requirements C = Conditional Use, when approved by the City and Department of Ecology X = Prohibited; the use is not eligible for a Variance **or Conditional Use Permit**[9]	**Natural**	**High Intensity**	**Urban Conservancy**[10]	**Shoreline Residential**	**Aquatic**[11]
Shoreline Uses					
Agriculture	C[8]	X	P	X	X
Aquaculture	X	X	X	X	X
Boating Facilities[13]	X	P	P	P	P
Commercial:					
Water-dependent	X	P	P[1]	X	X
Water-related, -enjoyment	X	P	P[1]	X	X
Non-water-oriented	X	C[4]	X	X	X
Flood Hazard Management	X	P	P	P	C
Forest Practices	X	X	X	X	X
Industrial					
Water-dependent	X	P	X	X	X
Water-related, -enjoyment	X	P	X	X	X

The chart is coded according to the following legend. P = Permitted, when meeting requirements for that use and shoreline area, may be subject to Shoreline Substantial Development Permit or shoreline exemption requirements C = Conditional Use, when approved by the City and Department of Ecology X = Prohibited; the use is not eligible for a Variance **or Conditional Use Permit**[9]	**Natural**	**High Intensity**	**Urban Conservancy**[10]	**Shoreline Residential**	**Aquatic**[11]
Non-water-oriented	X	P[4]	X	X	X
In-stream structures	C	C	C	C	C
Mining	X	X	X	X	X
Parking (accessory)	X	P[2]	P[2]	P[2]	X
Parking (primary, including paid)	X	X	X	X	X
Recreation:					
Water-dependent	P[3]	P	P	P	P
Water-enjoyment	P[3]	P	P	P	X
Nonwater-oriented	X	P[4]	P[4]	P	X
Single-Family residential	X	X	X	P[17]	X
Multi-family residential	X	P	C[12]	P	X
Land subdivision	P	P	P[5]	P	X
Signs:					
On premises	X	P	P[6]	X	X
Off premise	X	X	X	X	X
Public, highway	X	P	P	X	X
Solid waste disposal	X	X	X	X	X
Transportation:					
Water-dependent	X	P	P	C	P
Nonwater-dependent	X	P	C	C	C[7]
Roads, railroads	C[7]	P	P[7]	P	C[7]
Utilities (primary)	C[7]	P	P[7]	P	C[7]
Shoreline Modifications					
Shoreline stabilization:					
Environmental restoration	P	P	P	P	P
Bioengineering	C	P	P	P	C
Revetments	X	P	C	P	C
Bulkheads	X	P	C	P	C
Breakwaters/jetties/weirs/groins	X	X	X	X	X
Dikes, levees	X	C	C	C	C
Clearing and grading	X	P	P	P	NA
Dredging	NA	NA	NA	NA	C
Hazardous waste cleanup	P	P	P	P	P
Fill[14]	X	P	P	P	C[15]
Piers, docks[16]	X	P	P	P	P

The chart is coded according to the following legend. P = Permitted, when meeting requirements for that use and shoreline area, may be subject to Shoreline Substantial Development Permit or shoreline exemption requirements C = Conditional Use, when approved by the City and Department of Ecology X = Prohibited; the use is not eligible for a Variance **or Conditional Use Permit**[9]	**Natural**	**High Intensity**	**Urban Conservancy**[10]	**Shoreline Residential**	**Aquatic**[11]
Moorage piles, mooring buoys, swimming floats	X	X	X	X	X

1. *Park concessions, such as small food stands, cafes, and restaurants with views and seating oriented to the water, and uses that enhance the opportunity to enjoy publicly accessible shorelines are allowed.*
2. *Accessory parking is allowed in shoreline jurisdiction only if there is no other feasible option, as determined by the City.*
3. *Passive activities, such as nature watching and trails, that require little development with no significant adverse impacts may be allowed.*
4. *Nonwater-oriented uses may be allowed as a permitted use where the City determines that water-dependent or water-enjoyment use of the shoreline is not feasible due to the configuration of the shoreline and water body or due to the underlying land use classification in the comprehensive plan.*
5. *Land division is only allowed where the City determines that it is for a public purpose.*
6. *Signs are allowed for public facilities only.*
7. *Roadways and public utilities are allowed if there is no other feasible alternative, as determined by the City, and all significant adverse impacts are mitigated.*
8. *Agricultural activities existing at the time of adoption of this SMP only.*
9. *For the treatment of existing nonconforming development, see Chapter 7 Section E.*
10. *Development in channel migration zones is allowed only by conditional use permit where it can be shown that such development would not prevent natural channel migration.*
11. *Uses noted as allowed in the Aquatic environment are allowed only if allowed in the adjacent upland environment.*
12. *Multifamily residences may be allowed as part of a mix of uses, provided public access and ecological restoration are included as part of the project.*
13. *No new marinas.*
14. *Fill in the floodplain must meet all federal, state, and local flood hazard reduction regulations.*
15. *Fill in aquatic areas for the purposes of shoreline ecological restoration may be allowed as a permitted use if the Shoreline Administrator determines that there will be an increase in desired ecological functions.*
16. *New non-public piers and docks are prohibited on Little Pilchuck Creek and Catherine Creek.*
17. *Residences are allowed in shoreline jurisdiction only if it is not feasible, as determined by the City, to locate the building on the portion of the property outside shoreline jurisdiction.*

4.2 General Goals, Policies and Regulations

The SMP contains numerous general policies, with supporting regulations (see SMP), intended to protect the ecological functions of the shoreline and prevent adverse cumulative impacts. These policies are summarized below.

- Policy 4.b.2: All significant adverse impacts to the shoreline should be avoided or, if that is not possible, minimized to the extent feasible and provide mitigation to ensure no net loss of ecological function.

- Policy 8.b.4.a: All shoreline development should be located, designed, constructed and managed to avoid disturbance of and minimize adverse impacts to wildlife resources, including spawning, nesting, rearing and habitat areas and migratory routes.

- Policy 8.b.2.c: Protect and restore existing diversity of vegetation and habitat values, wetlands and riparian corridors associated with shoreline areas.

- Policy 11.b.2: This SMP in conjunction with other City development regulations should establish a coordinated and effective set of provisions and programs to protect and restore those functions provided by shoreline vegetation.

- SMP Table 6: All new development should provide adequate setbacks to protect or restore ecological functions and ecosystem-wide processes. Setbacks have been established by environment designation and for specific uses as follows:

Table 4. Shoreline Development Setbacks (from Table 6 of the Shoreline Master Program)

DEVELOPMENT STANDARDS[3, 4] *(See also section cited in parentheses)*	**Natural**	**High-Intensity**	**Urban Conservancy**	**Shoreline Residential**	**Aquatic**
Commercial Development *(Ch. 5 Sec. C.4)*					
Lakes:					
Water-dependent setback	N/A	60’	60’	N/A[2]	N/A
Water-related, water-enjoyment setback	N/A	60’	60’	N/A[2]	N/A
Nonwater-oriented setback	N/A	60’	60’	N/A[2]	N/A
Rivers and Streams:					
Water-dependent setback	N/A	160’	160’	N/A	N/A
Water-related, water-enjoyment setback	N/A	160’	160’	N/A	N/A
Nonwater-oriented setback	N/A	160’	160’	N/A	N/A
Industrial Development *(Ch. 5 Sec. C.5)*					
Rivers and Streams:					
Water-dependent	N/A	160’	N/A	N/A	N/A
Water-related and water-enjoyment	N/A	160’	N/A	N/A	N/A

DEVELOPMENT STANDARDS[3, 4] *(See also section cited in parentheses)*	Natural	High-Intensity	Urban Conservancy	Shoreline Residential	Aquatic
Nonwater-oriented	N/A	160'	N/A	N/A	N/A
Accessory Parking *(Ch. 3 Sec. B.6)*					
Setbacks	N/A	70'[1]	70'[1]	75'[2]	N/A
Recreational Development					
Water-dependent park structures setback	N/A	60'	60'	N/A	N/A
Water-related, water enjoyment park structures setback	N/A	60'	60'	N/A	N/A
Nonwater-oriented park structures setback *(Ch. 5 Sec. C.7.c.4)*	N/A	60'[1]	60'[1]	N/A	?
Miscellaneous					
New agricultural activities setback *(Ch. 5 Sec. C.2.c.4)*	N/A	N/A	20'[1]	N/A	N/A
Residential Development[2]					

1. *The City may reduce this dimension if it determines that the type of development allowed within this SMP and other municipal, state, and federal codes cannot be accommodated within the allowed site development area by reconfiguring, relocating, or resizing the proposed development. Where the City reduces a requirement, compensatory mitigation, such as vegetation enhancement or shoreline armoring removal, must be provided as determined by the City.*
2. *See regulation 5.C.8.c for residential development standards.*
3. *The maximum height of structures in shoreline jurisdiction is 35 feet above grade measured as called for in the City's zoning code and with exceptions as noted in the City's zoning code.*
4. *Setbacks from the shoreline do not apply to development separated from the shoreline by a public roadway.*

4.3 Shoreline Restoration Plan

As discussed above, one of the key objectives that the SMP must address is "no net loss of ecological shoreline functions necessary to sustain shoreline natural resources" (Ecology 2004). However, SMP updates seek not only to maintain conditions, but to improve them:

> *"…[shoreline master programs] include planning elements that when implemented, serve to improve the overall condition of habitat and resources within the shoreline area of each city and county (WAC 173-26-201(c))."*

The guidelines state that "master programs shall include goals, policies and actions for restoration of impaired shoreline ecological functions. These master program provisions

should be designed to achieve overall improvements in shoreline ecological functions over time, when compared to the status upon adoption of the master program" (WAC 173-26-201(2)(f)). Pursuant to that direction, the City has prepared a *Shoreline Restoration Plan*, which is a non-regulatory part of the SMP (Appendix B).

Practically, it is not always feasible for shoreline developments and redevelopments to achieve no net loss at the site scale, particularly for those developments on currently undeveloped properties or a new pier or bulkhead. The *Shoreline Restoration Plan*, therefore, can be an important component in making up that difference in ecological function that would otherwise result just from implementation of the SMP. The *Shoreline Restoration Plan* represents a long-term vision for restoration that will be implemented over time, resulting in incremental improvement over the existing conditions.

The *Shoreline Restoration Plan* identifies a number of project-specific opportunities for restoration on both public and private properties inside and outside of shoreline jurisdiction, and also identifies ongoing City programs and activities, non-governmental organization programs and activities, and other recommended actions consistent with a variety of watershed-level efforts.

4.4 General Cumulative Impacts Assessment

The following table (Table 5) summarizes for each environment designation and corresponding waterbody the existing conditions, anticipated development, relevant Shoreline Master Program (SMP) and other regulatory provisions, and the expected net impact on ecological function. Certain special topics are discussed and analyzed in greater detail in Chapter 5 following the table. The discussion of existing conditions is based on the *Shoreline Analysis Report*, and additional analysis needed to perform this assessment. The *Shoreline Analysis Report* includes a more in-depth discussion of the topics below, as well as information about transportation, stormwater and wastewater utilities, impervious surfaces, and historical/archaeological sites, *among others.*

In addition to the environment designations discussed in the following tables, the Aquatic designation will apply to those applicable areas of shoreline jurisdiction:

> "Aquatic" Environment - The purpose of the "Aquatic" environment is to protect, restore and manage the unique characteristics and resources of marine waters, including habitat, ecology, navigation and public enjoyment. An "Aquatic" environment designation will be assigned to shoreline areas waterward of the ordinary high-water mark.

Table 5. General Cumulative Impacts Assessment.

Shoreline Segment	Existing Conditions	Likely Development / Functions or Processes Potentially Impacted	Effect of SMP Provisions	Effect of Other Development and Restoration Activities / Programs	Net Effect
High Intensity					
Lake Stevens	The High Intensity area along Lake Stevens consists of one parcel with approximately 195 feet of shoreline. The parcel is developed with a commercial office building (currently vacant) and associated paved parking area and pier.	**Future Development:** It is likely that the High Intensity area along the Lake Stevens shoreline could redevelop with commercial uses. **Functions/Processes Impacted:** Water Quantity: No changes to water quantity are expected, as the site is nearly 100 percent impervious. Stormwater management requirements will be necessary to help alleviate water quantity impacts. Water Quality: Future redevelopment would likely provide improvements to water quality by improving shoreline vegetation and surface water management. Vegetation and Habitat: Given the cleared and very developed nature of the parcel, future degradation of shoreline vegetation is not anticipated. Future redevelopment should include enhancement of shoreline vegetation.	SMP policies for the "High Intensity" environment (SMP **Section 2.C.2.c)** include: • "In regulating uses in the "High-Intensity" environment, first priority should be given to water-dependent uses. Second priority should be given to water-related and water-enjoyment uses." • "Developments in the "High-Intensity" environment should be managed so that they enhance and maintain the shorelines for a variety of urban uses, with priority given to water-dependent, water-related, and water-enjoyment uses." • "Existing public access ways should not be blocked or diminished." • "Aesthetic objectives should be actively implemented by means such as sign control regulations, appropriate development siting, screening and architectural standards, and maintenance of natural vegetative buffers. These objectives may be implemented either through this SMP or other City ordinances." • "In order to make maximum use of the available shoreline resource and to accommodate future water-oriented uses, shoreline restoration and/or public access, the redevelopment and renewal of substandard, degraded, obsolete urban shoreline areas should be encouraged." SMP development regulations include, for Commercial uses (SMP **Section 5.C.4.c**): • "Commercial development shall be designed to avoid or minimize ecological impacts, to protect human health and safety, and to avoid significant adverse impacts to surrounding uses and the shoreline's visual qualities, such as views to the waterfront and the natural appearance of the shoreline." • "All commercial loading and service areas shall be located or screened to minimize adverse impacts to the shoreline environment." • "Commercial development and accessory uses must conform to the setback and height standards established in Section B "Development Standards Matrix" in this	Any in- or over-water proposals would require review not only by the City of Lake Stevens, but also by the Washington Department of Fish and Wildlife (WDFW). A project that includes in-water fill would require review and permitting from the U.S. Army Corps of Engineers (Corps), and the Washington Department of Ecology. Each of these agencies is charged with regulating and/or protecting shorelines and the waters of Lake Stevens, and would impose certain design or mitigation requirements on applicants. Restoration opportunities available at the site include enhancement of native shoreline vegetation for both terrestrial and aquatic habitat, removal of small amount of shoreline armoring, reduction in surface water runoff and improvement in infiltration capacity.	Unmitigated new development in this area has the potential to further degrade the baseline condition. Strict implementation of the SMP will be needed to minimize impacts, and is expected to result in the long-term improvement in ecological function.

Shoreline Segment	Existing Conditions	Likely Development / Functions or Processes Potentially Impacted	Effect of SMP Provisions	Effect of Other Development and Restoration Activities / Programs	Net Effect
			Chapter." • "Low Impact Development (LID) techniques shall be incorporated where appropriate." Commercial development shall be setback 60-feet from the Lake Stevens shoreline (SMP **Section 5.B**). For Industrial uses (SMP **Section 5.C.5.2**): • "The amount of impervious surface shall be the minimum necessary to provide for the intended use. The remaining land area shall be landscaped with native plants according to Chapter 3 Section B.11.c.5." • "Water-dependent industry shall be located and designed to minimize the need for initial and/or continual dredging, filling, spoil disposal, and other harbor and channel maintenance activities." • "Storage and disposal of industrial wastes is prohibited within shoreline jurisdiction; PROVIDED, that wastewater treatment systems may be allowed in shoreline jurisdiction if alternate, inland areas have been adequately proven infeasible." • "Display and other exterior lighting shall be designed, shielded, and operated to avoid illuminating the water surface." • "All industrial loading and service areas shall be located or screened to minimize adverse impacts to the shoreline environment (including visual impacts) and public access facilities." • "Low Impact Development (LID) techniques shall be incorporated where appropriate. Industrial development shall be setback 60-feet from the Lake Stevens shoreline (SMP **Section 5.B**).		
Catherine Creek	One parcel along Catherine Creek makes up the High Intensity environment. The parcel is owned by the City of Lake Stevens and is primarily undeveloped, with the exception of a paved parking area associated with the Hartford Industrial Park.	**Future Development:** It is likely that the High Intensity area along Catherine Creek could, over time, develop into commercial or light industrial uses. **Functions/Processes Impacted:** Water Quantity: Slight changes to water quantity related to surface runoff may increase with more commercial/industrial development. However, all future development would adhere to stormwater management requirements.	Same policies and regulations as above for High Intensity – Lake Stevens. Further, the commercial and industrial building setback in these areas is 160 feet. The accessory parking setback is 70 feet. (SMP **Section 5.B**).	Same State and Federal implications as outlined above for High Intensity – Lake Stevens. As identified in the Shoreline Restoration Plan (Appendix B of the SMP), several opportunities for improvements to shoreline ecological function exist: • Enhancing large woody debris (LWD) recruitment; promoting natural LWD recruitment; • Promoting pool, riffle and gravel bar development; • Evaluating and enhancing hydrologic conditions; • Following Planning and Community Development	New development has the potential to degrade the baseline condition in these areas. This may include loss of vegetation and increase in impervious surfaces. Strict adherence to the SMP and critical areas regulations are necessary to ensure no net loss of functions in this area.

Shoreline Segment	Existing Conditions	Likely Development / Functions or Processes Potentially Impacted	Effect of SMP Provisions	Effect of Other Development and Restoration Activities / Programs	Net Effect
		Water Quality: Future development of commercial/industrial uses may impact water quality increasing the likely application of chemicals, fertilizers and pesticides. Vegetation and Habitat: Preservation and enhancement of vegetation in this and other areas will ensure protection of existing functions.		Department design guidelines in Catherine Creek Park; • Restoring degraded wetlands; and • Restoring and enhancing riparian vegetation. These actions address the ecological functions assessed in the Restoration Plan, as well as the continuation of ongoing studies, projects and other efforts on the Catherine Creek shoreline.	
Little Pilchuck Creek	This area is largely undeveloped.	**Future Development:** It is likely that undeveloped areas along Little Pilchuck Creek could, over time, develop into commercial or light industrial uses. **Functions/Processes Impacted:** Water Quantity: Slight changes to water quantity related to surface runoff may increase with more commercial/industrial development. However, all future development would adhere to stormwater management requirements. Water Quality: Future development of commercial/industrial uses may impact water quality increasing the likely application of chemicals, fertilizers and pesticides. Vegetation and Habitat: Preservation and enhancement of vegetation in this and other areas will ensure protection of existing functions.	Same policies and regulations as above for High Intensity – Lake Stevens. Further, the commercial and industrial building setback in these areas is 160 feet. The accessory parking setback is 70 feet. (SMP **Section 5.B**).	Same State and Federal implications as outlined above for High Intensity – Lake Stevens. As identified in the Shoreline Restoration Plan (Appendix B of the SMP), several opportunities for improvements to shoreline ecological function exist: • Evaluating and enhancing hydrologic conditions; • Restoring degraded wetlands; • Restoring riparian vegetation; • Enhancing habitat with LWD; promoting natural LWD recruitment; and • Implement projects to fill data gaps identified in the 2002 Snohomish River Basin Salmonid Habitat Conditions Review. These actions address the ecological functions assessed in the Restoration Plan, as well as the continuation of ongoing studies, projects and other efforts on the Little Pilchuck Creek shoreline.	New development has the potential to degrade the baseline condition in these areas. This may include loss of vegetation and increase in impervious surfaces. Strict adherence to the SMP and critical areas regulations are necessary to ensure no net loss of functions in this area.
Shoreline Residential					
Lake Stevens	The residential areas along Lake Stevens are dominated by single-family residences. Most waterfront property is developed. Nearly half of all residential parcels are bisected by roads running parallel to the shoreline. Approximately three-quarters of the shoreline is armored. Nearly all properties have either single- or	**Future Development:** Currently only a few lots on Lake Stevens are undeveloped. Otherwise, no new development is expected along the shoreline. **Functions/Processes Impacted:** Water Quantity: Slight changes to water quantity related to surface runoff may increase with more residential development. However, all future development would adhere to stormwater management requirements. Water Quality: Future development of residential uses may impact water quality	SMP policies for the "Shoreline Residential" environment (SMP **Section 2.C.4**) include: • "Allow development only in those areas where impacts and hazards to or caused by the proposed development can be effectively mitigated and where the environment is capable of supporting the proposed use in a manner that protects ecological functions." • "Commercial development should be limited to water-oriented uses and not conflict with the residential character of lands in the "Shoreline Residential" environment. • "Water-oriented recreational uses should be allowed."	Any in- or over-water proposals would require review not only by the City of Lake Stevens, but also by the Washington Department of Fish and Wildlife (WDFW). A project that includes in-water fill would require review and permitting from the U.S. Army Corps of Engineers (Corps), and the Washington Department of Ecology. Each of these agencies is charged with regulating and/or protecting shorelines and the waters of Lake Stevens, and would impose certain design or mitigation requirements on applicants. As identified in the Shoreline Restoration Plan (Appendix B of the SMP), several opportunities for improvements to shoreline ecological function exist.	Limited new and redevelopment pressure as little waterfront property is undeveloped. New and redevelopment has the potential to degrade the baseline condition. Strict implementation of the SMP and the critical areas regulations should minimize impacts. If mitigation for potential setback reductions includes removal of

Shoreline Segment	Existing Conditions	Likely Development / Functions or Processes Potentially Impacted	Effect of SMP Provisions	Effect of Other Development and Restoration Activities / Programs	Net Effect
	joint-use pier access.	increasing the likely application of chemicals, fertilizers and pesticides. Slight improvements in water quality may occur upon development or redevelopment in areas devoid of shoreline vegetation through revegetation standards. Vegetation and Habitat: Preservation and enhancement of vegetation in this and other areas will ensure protection of existing functions. Improvements to vegetation coverage may also occur through implementation of development regulations which require shoreline planting areas.	• "New residential development should be supported by adequate land area and services." • "Land division and development should be permitted only 1) when adequate setbacks or buffers are provided to protect ecological functions and 2) where there is adequate access, water, sewage disposal, and utilities systems, and public services available and 3) where the environment can support the proposed use in a manner which protects or restores the ecological functions." • "Development standards for setbacks or buffers, shoreline stabilization, vegetation conservation, critical area protection, and water quality should be established to protect and, where significant ecological degradation has occurred, restore ecological functions over time." • "Multi-family development and subdivisions of land into more than four parcels should provide community access for residents of that development." • "New residential development should be located and designed so that future shoreline stabilization is not needed." Additional policies in the Residential Development uses section (SMP **Section 5.8.b**) include: • "No net loss of ecological functions must be assured with specific standards for setback of structures sufficient to avoid problems with future soil stabilization, buffers, density, shoreline stabilization, and on-site sewage disposal" • "The overall density of development, lot coverage, and height of structures should be appropriate to the physical capabilities of the site and consistent with the comprehensive plan." • "Adequate provisions should be made for protection of groundwater supplies, erosion control, stormwater drainage systems, aquatic and wildlife habitat, ecosystem-wide processes, and open space." • "Sewage disposal facilities, as well as water supply facilities, shall be provided in accordance with appropriate state and local health regulations." • "New residences should be designed and located so that shoreline armoring will not be necessary to protect the structure."	These include: • Evaluating habitat conditions and current/potential fish use in the lake; • Restoring degraded wetlands; • Restoring shoreline vegetation; • Enhancing shorelines with LWD; promoting natural LWD recruitment; • Improving floodplain connectivity; • Monitoring and improving water quality in the lake; • Following Planning and Community Development Department design guidelines in North Cove, Lundeen, Sunset, and Wyatt Parks; and • Implementing projects to fill data gaps identified in the 2002 Snohomish River Basin Salmonid Habitat Conditions Review. These actions address the ecological functions assessed in the Restoration Plan, as well as the continuation of ongoing studies, projects and other efforts on the Lake Stevens shoreline	substantial shoreline hardening and/or supplementation of native shoreline plantings, ecological function in developed residential areas could improve in the long term. Given the above potential impacts and mitigation measures, no net loss of ecological functions is expected.

Shoreline Segment	Existing Conditions	Likely Development / Functions or Processes Potentially Impacted	Effect of SMP Provisions	Effect of Other Development and Restoration Activities / Programs	Net Effect
			A detailed discussion of effects of SMP provisions related to residential setbacks is presented in Section 5.1. The regulations in SMP **Section 5.C.8.c.1** provide for a protective setback of 60 feet in areas along the Lake Steven shoreline and allowances for reductions of the 60-foot setback that could occur only when paired with mitigation elements for restoration and enhancement of functions. Further, vegetation conservation regulations include, "For new development on previously undeveloped lots, any existing native vegetation shall be retained along the shoreline to 20 feet from the OHWM. If little or no native vegetation exists on the previously undeveloped lot, native vegetation shall be planted along the shoreline to 20 feet from the OHWM." (SMP **Section 5.C.8.c.3**) A detailed discussion of effects of SMP provisions related to residential overwater structures is presented in Section 5.2. The regulations in SMP **Section 4.C.3** contain strict dimensional and materials standards. A detailed discussion of effects of SMP provisions related to new and replacement shoreline stabilization is presented in Section 5.3. The regulations contained within SMP **Section 4.C.2** will considerably reduce the potential for new hard shoreline stabilization, and will likely result over time in conversions of existing hard structural stabilization to soft structural stabilization.		
Catherine Creek	The residential areas along Catherine Creek are primarily built-out, with a majority of the housing built within the last few decades.	**Future Development:** Currently only a few residential lots on Catherine Creek are undeveloped. Otherwise, no new development is expected along the shoreline. **Functions/Processes Impacted:** Water Quantity: Slight changes to water quantity related to surface runoff may increase with more residential development. However, all future development would adhere to stormwater management requirements. Water Quality: Future development of residential uses may impact water quality increasing the likely application of chemicals, fertilizers and pesticides. Slight improvements	Same policies and regulations as above for Shoreline Residential – Lake Stevens. Further, the residential setback in these areas is 160 feet (SMP **Section 5.B**).	Same State and Federal implications as outlined above for Shoreline Residential – Lake Stevens. As identified in the Shoreline Restoration Plan (Appendix B of the SMP), several opportunities for improvements to shoreline ecological function exist: • Enhancing LWD recruitment; promoting natural LWD recruitment; • Promoting pool, riffle and gravel bar development; • Evaluating and enhancing hydrologic conditions; • Following Planning and Community Development Department design guidelines in Catherine Creek Park; • Restoring degraded wetlands; and • Restoring and enhancing riparian vegetation.	Limited new and redevelopment pressure, critical areas regulations, and SMP provisions ensure that any development in the Shoreline Residential jurisdiction would not result in net loss of ecological function.

Shoreline Segment	Existing Conditions	Likely Development / Functions or Processes Potentially Impacted	Effect of SMP Provisions	Effect of Other Development and Restoration Activities / Programs	Net Effect
		in water quality may occur upon development or redevelopment in areas devoid of shoreline vegetation through revegetation standards. Vegetation and Habitat: Preservation and enhancement of vegetation in this and other areas will ensure protection of existing functions. Improvements to vegetation coverage may also occur through implementation of development regulations which require shoreline planting areas.		These actions address the ecological functions assessed in the Restoration Plan, as well as the continuation of ongoing studies, projects and other efforts on the Catherine Creek shoreline.	
Little Pilchuck Creek	Residential designated areas along Little Pilchuck Creek are largely undeveloped.	**Future Development:** The area is largely under developed and has the potential to be developed at a higher intensity. There are approximately six residential parcels within this area. **Functions/Processes Impacted:** Water Quantity: Slight changes to water quantity related to surface runoff may increase with more residential development. However, all future development would adhere to stormwater management requirements. Water Quality: Future development of residential uses may impact water quality increasing the likely application of chemicals, fertilizers and pesticides. Slight improvements in water quality may occur upon development or redevelopment in areas devoid of shoreline vegetation through revegetation standards. Vegetation and Habitat: Preservation and enhancement of vegetation in this and other areas will ensure protection of existing functions. Improvements to vegetation coverage may also occur through implementation of development regulations which require shoreline planting areas.	Same policies and regulations as above for Shoreline Residential – Lake Stevens. Further, the residential setback in these areas is 160 feet (SMP **Section 5.B**).	Same State and Federal implications as outlined above for Shoreline Residential – Lake Stevens. As identified in the Shoreline Restoration Plan (Appendix B of the SMP), several opportunities for improvements to shoreline ecological function exist: • Evaluating and enhancing hydrologic conditions; • Restoring degraded wetlands; • Restoring riparian vegetation; • Enhancing habitat with LWD; promoting natural LWD recruitment; and • Implement projects to fill data gaps identified in the 2002 Snohomish River Basin Salmonid Habitat Conditions Review. These actions address the ecological functions assessed in the Restoration Plan, as well as the continuation of ongoing studies, projects and other efforts on the Little Pilchuck Creek shoreline.	Limited new and redevelopment pressure, critical areas regulations, and SMP provisions ensure that any development in the Shoreline Residential jurisdiction would not result in net loss of ecological function.
Urban Conservancy					
Lake Stevens	The Urban Conservancy designation along the Lake Stevens shoreline includes County-owned Wyatt Park and Sunset Park, and City-owned Lundeen Park, Swim Beach, and North Cove	**Future Development:** There is little likelihood of future changes through these shoreline areas with the exception of the expansion and redevelopment of North Cove Park. **Functions/Processes Impacted:** Water Quantity: With little to no expansion of impervious surface coverage planned, no	SMP policies for the "Urban Conservancy" environment (SMP **Section 2.C.3.c**) include: • "Water-oriented recreational uses should be given priority over nonwater oriented uses. Water-dependent recreational uses should be given highest priority." • "Public access and public recreation objectives should be implemented whenever feasible and	Any in- or over-water proposals would require review not only by the City of Lake Stevens, but also by the Washington Department of Fish and Wildlife (WDFW). A project that includes in-water fill would require review and permitting from the U.S. Army Corps of Engineers (Corps), and the Washington Department of Ecology. Each of these agencies is charged with regulating and/or protecting shorelines and the waters of Lake	SMP provisions, including setbacks and Restoration Plan implementation, ensure that environmental conditions in this environment will not be degraded relative to existing baseline over the long term.

Shoreline Segment	Existing Conditions	Likely Development / Functions or Processes Potentially Impacted	Effect of SMP Provisions	Effect of Other Development and Restoration Activities / Programs	Net Effect
	Park. Existing conditions include the following: **Wyatt Park:** Facilities include a public boat launch, a dock (for boats), a fishing pier, a lifeguard-monitored swimming area, restrooms, picnic tables, and 80 parking spaces. **Sunset Park:** Facilities include a public dock, picnic tables, and six parking spaces **Lundeen Park:** Facilities include a public pier, 500 feet of shoreline, a swimming area, sports courts and 98 parking spaces. **Swim Beach:** Facilities include 560 square feet of useable beach, a 600 square foot municipal swimming dock, a portable restroom, and 10 parking spaces. **North Cove Park:** The park has a 250 foot municipal boardwalk/pier (interpretation, fishing & picnicking, but no public boat access), picnic tables, and two horseshoe pits. Also a small dock for Police Department boats. .	significant change to water quantity is expected. All future development would adhere to stormwater management requirements. Water Quality: Future development of residential uses may impact water quality by decreasing vegetative cover and increasing the likely application of chemicals, fertilizers and pesticides. Vegetation and Habitat: Future redevelopment and/or restoration activities at the various parks are likely to result in improved vegetation and habitat conditions through the addition of native plantings.	significant ecological impacts can be mitigated." • "Standards should be established for shoreline stabilization measures, vegetation conservation, water quality, and shoreline modifications within the "Urban Conservancy" designation to ensure that new development does not further degrade the shoreline and is consistent with an overall goal to improve ecological functions and habitat." • "Water-dependent and water-enjoyment recreation facilities that do not deplete the resource over time, such as boating facilities, angling, wildlife viewing trails, and swimming beaches, are preferred uses, provided significant ecological impacts to the shoreline are avoided or mitigated." Development regulations within the Urban Conservancy environment state, "Nonwater-oriented structures, such as restrooms, recreation halls and gymnasiums, recreational buildings and fields, access roads, and parking areas, shall be set back from the OHWM at least 70 feet unless it can be shown that there is no feasible alternative." (SMP **Section 5.7.c.4**)	Stevens, and would impose certain design or mitigation requirements on applicants. As identified in the Shoreline Restoration Plan (Appendix B of the SMP), several opportunities for improvements to shoreline ecological function exist. These include: • Evaluating habitat conditions and current/potential fish use in the lake; • Restoring degraded wetlands; • Restoring shoreline vegetation; • Enhancing shorelines with LWD; promoting natural LWD recruitment; • Improving floodplain connectivity; • Monitoring and improving water quality in the lake; • Following Planning and Community Development Department design guidelines in North Cove, Lundeen County, Sunset, and Wyatt Parks; and • Implementing projects to fill data gaps identified in the 2002 Snohomish River Basin Salmonid Habitat Conditions Review. These actions address the ecological functions assessed in the Restoration Plan, as well as the continuation of ongoing studies, projects and other efforts on the Lake Stevens shoreline.	It will be critical to evaluate projects on a site-specific and project-specific basis, however, and utilize the available impact minimization and protective provisions of the SMP. Given strict adherence to the SMP policies and regulations, no net loss of ecological functions is expected as no detrimental or un-mitigated alterations to the existing conditions are likely to occur along the Urban Conservancy designated shorelines.
Catherine Creek	The Urban Conservancy designation along the Catherine Creek shoreline includes Catherine Creek Park. The park is an 8-acre	**Future Development:** There is little likelihood of future changes through this shoreline area. **Functions/Processes Impacted:** Water Quantity: With little to no expansion of impervious surface coverage planned, no	SMP policies same as above for Urban Conservancy – Lake Stevens.	Same State and Federal implications as outlined above for Urban Conservancy – Lake Stevens. As identified in the Shoreline Restoration Plan (Appendix B of the SMP), several opportunities for	Net effect same as above for Urban Conservancy – Lake Stevens.

Shoreline Segment	Existing Conditions	Likely Development / Functions or Processes Potentially Impacted	Effect of SMP Provisions	Effect of Other Development and Restoration Activities / Programs	Net Effect
	community park that is maintained primarily as a "natural" park with a network of trails (2 miles), access to Catherine Creek, picnic facilities, and a disc golf course.	significant change to water quantity is expected. All future development would adhere to stormwater management requirements. Water Quality: Future development of recreational uses may impact water quality by decreasing vegetative cover and increasing the likely application of chemicals, fertilizers and pesticides. Vegetation and Habitat: Future redevelopment and/or restoration activities are likely to result in improved vegetation and habitat conditions.		improvements to shoreline ecological function exist: • Enhancing LWD recruitment; promoting natural LWD recruitment; • Promoting pool, riffle and gravel bar development; • Evaluating and enhancing hydrologic conditions; • Following Planning and Community Development Department design guidelines in Catherine Creek Park; • Restoring degraded wetlands; and • Restoring and enhancing riparian vegetation. These actions address the ecological functions assessed in the Restoration Plan, as well as the continuation of ongoing studies, projects and other efforts on the Catherine Creek shoreline.	
Little Pilchuck Creek	The Urban Conservancy designation along the Little Pilchuck Creek shoreline includes the Centennial Trail. The 17-mile recreational trail runs form Snohomish to Arlington.	**Future Development:** There is little likelihood of future changes through this shoreline area. **Functions/Processes Impacted:** Water Quantity: With little to no expansion of impervious surface coverage planned, no significant change to water quantity is expected. All future development would adhere to stormwater management requirements. Water Quality: Future development of residential uses may impact water quality by decreasing vegetative cover and increasing the likely application of chemicals, fertilizers and pesticides. Vegetation and Habitat: Future redevelopment and/or restoration activities are likely to result in improved vegetation and habitat conditions.	SMP policies same as above for Urban Conservancy – Lake Stevens.	Same State and Federal implications as outlined above for Urban Conservancy – Lake Stevens. As identified in the Shoreline Restoration Plan (Appendix B of the SMP), several opportunities for improvements to shoreline ecological function exist: • Evaluating and enhancing hydrologic conditions; • Restoring degraded wetlands; • Restoring riparian vegetation; • Enhancing habitat with LWD; promoting natural LWD recruitment; and • Implement projects to fill data gaps identified in the 2002 Snohomish River Basin Salmonid Habitat Conditions Review. These actions address the ecological functions assessed in the Restoration Plan, as well as the continuation of ongoing studies, projects and other efforts on the Little Pilchuck Creek shoreline.	Net effect same as above for Urban Conservancy – Lake Stevens.
Natural					
Lake Stevens	The Stevens Creek and Stitch Lake wetland complexes are primarily in a naturally forested state, with an abundance of ponded areas that included both emergent and aquatic vegetation.	**Future Development:** No future development is anticipated. The only anticipated activity would be restoration. **Functions/Processes Impacted:** No adverse impacts to function/processes are anticipated in the future. Habitat enhancement may occur at some point in the future.	SMP policies for the "Natural" environment (SMP **Section 5.7**) include: • "Any use that would substantially degrade the ecological functions or natural character of the designated wetland area should be prohibited." • "Uses that are consumptive of physical, visual, and biological resources should be prohibited." Development regulations within the Natural	While areas designated as Natural shoreline environments typically have properly functioning shoreline conditions that provide a variety of ecological functions, portions of these shoreline areas may also be in need of improvements. While no specific restoration opportunities are identified in the Shoreline Restoration Plan, preservation of the wetland areas in their present state, through the City's	No net loss of ecological functions is expected as no detrimental alterations to the existing conditions in this environment are likely to occur.

Shoreline Segment	Existing Conditions	Likely Development / Functions or Processes Potentially Impacted	Effect of SMP Provisions	Effect of Other Development and Restoration Activities / Programs	Net Effect
		No adverse impacts to function/processes associated with the wetland complexes are anticipated in the future.	environment state that, “[t]he ecological resources in the Natural-Wetlands environment should be protected through the provisions in the Critical Areas section of this SMP.” (SMP **Section 2.C.1.c.6**)	SMP and critical areas regulations, should ensure adequate protection.	

ATTACHMENT 3

5 DEVELOPMENT IMPLICATIONS

In addition to the general cumulative impacts analysis presented in the table in Section 4, this section will expand on several key areas of functions and impacts associated with new and redevelopment within the "Shoreline Residential" environment designation on Lake Stevens.

5.1 Residential Setbacks on Lake Stevens

With the possible exception of limited additional residential-zoned lands being acquired for public open space, planned land use in the Shoreline Residential environment is not expected to change over the next 20 years, although new residential development and substantial remodels are anticipated. Typically, development of vacant lots into residential uses would result in replacement of pervious, vegetated areas with impervious surfaces and a landscape management regime that often includes chemical treatments of lawn and landscaping. These actions can have multiple effects on shoreline ecological functions, including:

- Reduction in ability of site to improve quality of waters passing through the untreated vegetation and healthy soils.
- Potential contamination of surface water from chemical and nutrient applications.
- Increase in surface water runoff due to reduced infiltration area and increased impervious surfaces, which can lead to excessive soil erosion and subsequent in-water sediment deposition.
- Elimination of upland habitat occupied by wildlife that use riparian areas.

Under the City's existing critical areas regulations, structures must be set back 50 feet from the Lake Stevens shoreline as part of the Fish and Wildlife Conservation Area Buffer (LSMC 14.88.430). Under the proposed SMP (SMP **Section 8.c**), the minimum standard residential shoreline setback will be 60 feet, while the minimum deck setback will be 50 feet. A setback of greater than 60 feet will apply to those parcels with adjacent properties that have setbacks greater than 60 feet. As per LSMC 14.88.430(f), setbacks to shorelines of state-wide significance are regulated under the SMP and the City's Critical Areas regulations. Accordingly, the setbacks in LSMC 14.88.430(a) shall apply when no setbacks are specified in the SMP. If setbacks are specified in both Critical Areas regulations and SMP, the more restrictive setbacks shall apply.

According to a sampling of the City's GIS data, the average residential setback for three areas of the lake are listed in Table 6.

Table 6. Breakdown of average building setbacks in the Shoreline Residential environment.

Location	# of parcels sampled	Average Setback
Western Shoreline	50	64-feet
Eastern Shoreline	50	103-feet
Northern Shoreline	50	98-feet

While the amount of space between the shoreline and a structure is an excellent quick evaluation of shoreline condition, for most urban residential shorelines, the condition of nearshore environments (including extent of native vegetation, amount of impervious surfaces, and extent of chemical usage on lawns and landscaping) is a more precise indicator of shoreline health. For the case of Lake Stevens, shoreline conditions allow for waterward development up to 50 feet from shore with most of that space used as mowed lawn with some ornamental landscaping, much of it presumably treated routinely or occasionally with pesticides, herbicides or fertilizers. Shoreline setbacks in conjunction with impervious surface cover restrictions and revegetation standards are an excellent means to improve overall shoreline ecological functions in developed areas.

The significance of impervious surfaces on a shoreline environment where surface water quantity is not really a factor (as the lake is primarily fed by groundwater) is very diminished given the residential uses. Single-family or multi-family homes generally have clean roof and sidewalk runoff, and driveways, whether 50 square feet or 5,000 square feet, are typically pollution-generating surfaces only to the extent that vehicle-related pollutants are deposited on them. Most single-family homes have between two and four vehicles, regardless of the driveway area and thus the correlation between driveway area and amount of pollution is not strong. Garages and pavement for motorized vehicles are to be set back at least 75 feet from the lake (SMP **Section 5.8.c.4**). An impervious surface standard has been set at 40 percent (SMP **Section 5.8.c.2.b**) for single-family lots, with incentives for an increase up to 50 percent (SMP **Section 5.8.c.2.c**). On newly developed lots, vegetation shall be retained along the shoreline to 20 feet from the OHWM (SMP **Section 5.8.c.3**). Those properties with a 60-foot standard setback that choose to reduce their setback would be required to mitigate impacts through various shoreline enhancement

mechanisms such as native revegetation, shoreline armoring removal or softening, impervious surface reductions, and stormwater controls.

Vegetation conservation standards for clearing and grading associated with residential development within shoreline jurisdiction include the implementation of a detailed landscape revegetation and monitoring plan (SMP **Section 5.8.c.3**).

Relative to the existing conditions in the Shoreline Residential environment along the Lake Stevens shoreline, the implementation of 60-foot setbacks, impervious surface restrictions, and revegetation standards will likely result in improvements to ecological functions over time (benefiting terrestrial and aquatic species). Although it would be possible, in some instances, for residences to be relocated closer to the shoreline than their existing condition, they would not be allowed further waterward than the greater of 60 feet or the average of their two adjacent structures. Presumably, this will continue to maintain an average setback greater than 60 feet, thereby minimizing the likelihood of additional degradation of ecological functions. Furthermore, in the case of properties requesting reduced setbacks due to site constraints, enhancement to nearshore ecological functions are likely to be proposed.

It is important that the impervious surfaces be separated from the waterbody to the extent that those surfaces replace vegetation, which can have a variety of ecological benefits. The setback provisions described above continue to maintain separation between the homes and the water, leaving the nearshore area available for vegetation.

In summary, new residences and substantial remodels/additions are expected in the Shoreline Residential environment over the next 20 years. The protective setbacks and other measures in the SMP, including a requirement for shoreline vegetation and impervious surface limits, will maintain or improve ecological functions of the shoreline over the long term, thereby resulting in no net loss of shoreline ecological function within the environment.

5.2 Overwater Structures

Overwater structures encompass a variety of uses, from in-water structures, such as fixed-pile piers, floating docks and platforms, to moorage covers, such as canopies and boathouses. Within the City, all overwater structures directly associated with a single-family residential use are located on Lake Stevens. It is difficult to determine exactly how many waterfront properties on Lake Stevens do not have a pier or pier access, particularly as many piers are located near property lines and thus it is possible that those may be shared with the adjacent property.

The proposed SMP prohibits docks, piers, and floats for single-family residential use outside of Lake Stevens. Therefore, it is not anticipated that new structures will be developed outside of this area.

Piers and docks can adversely affect ecological functions and habitat in the following ways:

- Alter patterns of light transmission to the water column, affecting macrophyte growth and altering habitat for and behavior of aquatic organisms, including juvenile salmon.
- Interfere with long-shore movement of sediments, altering substrate composition and development.
- Contribute to contamination of surface water from chemical treatments of structural materials.

The current SMP does not include specifications for the width or overall size of piers and docks. Under the proposed SMP, dimensional criteria for new, expansion, and replacement structures is included (Chapter 4.C.3) in order to reduce potential impacts.

Under the proposed SMP, these criteria will include: 1) pier width of 6 feet or less (exception to 8 feet with planting of significant trees); 2) grated decking at least in the first 30 feet from shore; 3) float/ell width of 8 feet or less; and 4) pier and float orientation designed to minimize light impacts.

Table 7 outlines some of the primary differences between the original and proposed SMP (see Draft SMP Chapter 4, Over-Water Structures) provisions for piers.

Under the proposed SMP, new piers will be smaller and narrower than piers approved under the original SMP. New and replacement piers will also include light-transmitting decking material for at least the first 30 feet from shore, which will reduce the effect of the overwater cover. Nevertheless, if new piers were the only pier-related activity in Lake Stevens, ecological function would still marginally decline. The decline would be due to an unavoidable net increase in in-water structures and overwater cover that cannot be mitigated.

However, pier repair and pier maintenance activities are more common, and it is anticipated that pier replacement proposals may become even more common as existing piers degrade or do not meet the property owner's needs in their current configuration or location. Under the proposed SMP, existing piers could be replaced at the same size as the existing pier, as long as the entire replacement pier contained light-transmitting decking material.

Table 7. Comparison of key differences between original and proposed SMP provisions for new over-water structures.

Pier Feature	Original SMP	Proposed SMP
Length	No longer than adjacent piers or 50-ft maximum	Length to reach a 5.5 foot water depth, maximum 200-ft
Width	No specification	4-ft walkway[1] 6-ft remainder of pier 8-ft ells/float 2-ft finger 4-ft ramp connecting to pier
Deck Material	No specification	All new and replacement piers must be grated at least the first 30 feet from shore
Size	No specification	1,200 sq. ft. (if maximum 200-ft length is necessary to reach a 5 ½-ft water depth)

[1]Exceptions: 1) 6 foot wide allowed if the dock remains entirely linear with no ell, float, or other configuration or if the dock is grated for the entire portion. 2) 8-foot wide if the items under (1) above are met AND two native, evergreen trees area planted along the shoreline within ten feet of the dock.

The Washington Department of Fish and Wildlife (WDFW) is typically requiring piers that are both smaller in overall size than average existing piers and also narrower in the nearshore area. However, WDFW will, on a case-by-case basis, consider replacement piers at the same size as the original pier if it can be thoroughly shown that the applicant has demonstrated a need for the pier, and that proper mitigation sequencing has been followed (avoidance, minimization, and mitigation). Grated decking is a mitigating factor that WDFW encourages. Any new or replacement pier would require a Hydraulic Project Approval (HPA) from WDFW, on whose guidelines the proposed SMP pier provisions are partially based. The combined effects of the City's proposed SMP and permit approvals from WDFW will likely result in a reduction over time of the net amount of overwater coverage and an increase in the amount of light-transmitting decking.

A quantitative analysis is provided below (Table 8), based partially on Lake Stevens lake-wide trends and assumptions. This analysis assumes that 19 of the estimated 41 properties on Lake Stevens without piers will add piers within the next 20 years. Also assumed is that 15 percent of all existing piers will need replacement over the same time period. Assuming that all new and replacement pier structures will be grated at least in the first 30 feet from shore and that replacement pier structures can be replaced at the same size as the existing pier, the total area of overwater structure is not anticipated to significantly increase over this time period. Exceptions to the dimensional criteria provided for new piers, specifically the allowance for pier walkways to be 8 feet wide, are off-set

by the requirement to plant at least two significant evergreen trees near the pier. Based on the evaluation of potential new piers, it is not likely that this exception will be utilized very often. Based on the calculations provided in Table 8, a net decrease of approximately 216 (0.0%) square feet of new cover is anticipated. As improvements will be made to nearshore conditions through the addition of grated decking within the first 30 feet from shore associated with most pier projects, net improvements in nearshore functions are anticipated.

Table 8. Comparison of build-out conditions for overwater structures.

	Existing	Build-Out	Net Change	% Change
Number of Piers	398	417[1]	+19	+4.6
Average Area of piers (sq. ft.)	1,232	1,192[2]	-40.0	-3.2
Total area of piers (sq. ft.)	490,215	489,999[3]	-216	0.0

[1] *Assumes that 19 of 41 existing properties without piers will construct a new pier over the next 20 years.*
[2] *Assumes 19 new piers at 436 ft^2 each (based upon proposed SMP width provisions and average length of existing piers – 64 ft) and 15 percent replacement of existing piers over 20 years (assumes replacement piers to be replaced at the same size – 1,231.7 ft^2 average).*
[3] *Assumes 19 new piers and 15 percent replacement piers are grated at least the first 30 feet from shore (grating is calculated to have 60 percent open space).*

5.3 Shoreline Stabilization

New shoreline armoring typically has the following effects on ecological functions:

- Reduction in nearshore habitat quality for both aquatic and terrestrial species. Specifically, shoreline complexity and native emergent vegetation that provide forage and cover may be reduced or eliminated. Elimination of shallow-water habitat may also increase vulnerability of juvenile salmonids to aquatic predators.

- Reduction of natural sediment recruitment from the shoreline. This recruitment is necessary to replenish substrate and preserve shallow water conditions.

- Increase in wave energy at the shoreline if shallow water is eliminated, resulting in increased nearshore turbulence that can be disruptive to aquatic resources.

Under the proposed SMP (Chapter 4.C.2), new shoreline stabilization (using hard or soft methods) would only be allowed "to protect or support an existing or approved development, as necessary for human safety, for the restoration of ecological functions, or for hazardous substance remediation pursuant to Chapter 70.105D RCW." It must be demonstrated in a study prepared by a

qualified professional (e.g. geotechnical engineer) that the proposed stabilization is the least harmful method to the environment and the project will mitigate adverse impacts.

Proposals for hard stabilization methods (e.g. rock revetments, concrete walls, groins, etc.) must first demonstrate that softer methods using natural materials and non-structural solutions, including relocation or reconstruction of existing structures, are not feasible. Proposals for hard shoreline stabilization must show that the cumulative effect would have no net loss of shoreline ecological functions.

Replacement bulkheads may be permitted if there is a demonstrated need to protect principal uses or structures from erosion provided the proposed replacement structure does not encroach further waterward of the OHWM, all impacts are mitigated, and no net loss of shoreline ecological functions is assured.

Independent of regulations by other regulatory agencies, the proposed SMP ensures that shoreline stabilization projects will not degrade the baseline condition.

The Army Corps of Engineers and WDFW have jurisdiction over new shoreline stabilization projects, and repairs or modifications to existing shoreline stabilization. As part of their efforts to minimize and compensate for shoreline stabilization-related impacts, both agencies encourage implementation of native shoreline enhancement for new shoreline stabilization projects. Further, they also strongly promote shoreline restoration and additional impact compensation measures for many shoreline armoring modification projects, including placement of gravel at the toe of the armoring to create shallow-water habitat, angling the armored face landward to reduce wave turbulence, and shifting the armoring as far landward as feasible.

Based on an evaluation of the City's GIS data, approximately 80 percent of developed properties within the Shoreline Residential environment along the Lake Stevens shoreline currently contain shoreline armoring. Therefore, the need for new shoreline stabilization is expected to be limited. As mentioned above, it must be demonstrated that there is a need to protect a proposed development from damage due to erosion caused by natural processes, such as currents, waves, or boat wakes. The proposed SMP includes incentives for the removal of existing bulkheads under the residential setback reduction alternatives.

Over time, the combined effects of the City's proposed SMP, and permit approvals from the WDFW and the Corps will likely result in a reduction over time of the net amount of hardened shoreline at the ordinary high water mark,

an increase in shallow-water habitat, and an increase in shoreline vegetation within the Shoreline Residential environment.

6 NET EFFECT ON ECOLOGICAL FUNCTION

As described above in Sections 4 and 5, the proposed SMP provides a substantially increased level of protection to shoreline ecological functions relative to the existing SMP. On its own, the proposed SMP, which includes the Shoreline Restoration Plan, is expected to protect and improve shorelines within the City of Lake Stevens while accommodating the reasonably foreseeable future shoreline development, resulting in no net loss of shoreline ecological function. State and federal regulations, acting in concert with this SMP, will provide further assurances of improved shoreline ecological functions over time.

As discussed above, major elements of the SMP that ensure no net loss of ecological functions fall into generally five categories: 1) environment designations (Chapter 2), 2) general provisions (Chapter 3), 3) shoreline use provisions (Chapter 5), 4) shoreline modification provisions (Chapter 4), and 5) Shoreline Restoration Plan (Appendix B).

Environment designations: The *Shoreline Analysis Report* provided the information necessary to assign environment designations for the City's shorelines. Shoreline uses and modifications were then individually determined to be either permitted (as substantial developments or conditional uses) or prohibited in each of those environment designations. The most uses and modifications are allowed in descending order of potential impact in the High Intensity, Shoreline Residential, Urban Conservancy, and Natural environments. The only uses allowed in the Natural environment are related generally to restoration, scientific studies, and passive recreation.

General provisions: **Chapter 3** contains a number of regulations on a variety of topics that contribute to protection and restoration of ecological functions, including **Section 3.B.3** (Critical Areas).

Shoreline use provisions: Regulations in **Chapter 5** focus on exclusion of uses that are incompatible with the existing land use and ecological conditions, and emphasize appropriate location and design of the various uses. These regulations also emphasize avoidance and minimization of ecological impacts via appropriate setbacks, protection and enhancement of vegetation, reduction of impervious surfaces, and use of innovative designs (such as LID techniques) that

do not degrade and may even enhance shoreline functions. These factors are balanced with uses that are essential to the City's waterfront use and development. While allowing water-dependent uses and developments to continue along the shoreline, the proposed SMP emphasizes protection and enhancement of shoreline resources such that no net loss of ecological functions will be achieved over time.

Shoreline modification provisions: **Chapter 4** contains a number of regulations on a variety of topics that contribute to protection and restoration of ecological functions, including **Section 4.C.3** (Over-water Structures), **Section 4.C.6** (Shoreline Restoration and Ecological Enhancement), and **Section 4.C.2** (Shoreline Stabilization). All of these shoreline modification regulations emphasize minimization of size of structures, and use of designs that do not degrade and may even enhance shoreline functions.

Shoreline Restoration Plan: The City follows a set of restoration goals and policies set forth in the Comprehensive Plan Critical Areas Element. The general goals are to protect all critical areas; policies include preventing any net loss of ecological function and value. Compensatory mitigation, which may include restoration, is called for in the Plan when new development would impact critical areas. As well, providing long-term protection for non-critical-area habitat is a goal. Both regulatory and non-regulatory approaches are supported in the Comprehensive Plan. A number of restoration projects and programs already in place are outlined in the *Shoreline Restoration Plan* (**Appendix B**). Specific opportunities and/or implementation strategies for restoration on both public and private properties inside and outside of shoreline jurisdiction are proposed by various groups; these efforts are summarized in the Restoration Plan and include the Snohomish Basin Salmon Recovery Program, Shared Strategy for Puget Sound, Puget Sound Partnership, Snohomish County Public Works, and Snohomish Conservation District, as well as ongoing City programs and activities. All of these programs and organizations share restoration goals of protecting and restoring ecological function and value within the watershed.

Summary: The following are some of the key features identified in the proposed SMP and this evaluation which protect and enhance shoreline ecological functions.

- Only nineteen new residential piers/docks are anticipated. Repair and reconstruction of existing structures is most likely and would include mechanisms to reduce overall impacts.
- Reductions or softening of hard shorelines through development incentives.

- Retention and revegetation along shorelines as part of future development.

- Protection of all large associated wetlands, and City parks and open spaces through Urban Conservancy or Natural environment designations.

- Residential development setbacks which are variable depending upon location throughout the City, with larger setbacks in areas with higher need for protection of shoreline resources and incentives to improve shoreline conditions through setback reductions.

- Emphasis on achieving no net loss of shoreline ecological functions throughout shoreline jurisdiction, including development of water-dependent uses.

Given the above provisions of the SMP, including the *Shoreline Restoration Plan* and the key features listed above, implementation of the proposed SMP is anticipated to achieve **no net loss of ecological functions in the City of Lake Stevens' shorelines**.

City of Lake Stevens
Grant No. G1000027

Shoreline Restoration Plan Component of the Shoreline Master Program for the City of Lake Stevens Shorelines: Lake Stevens, Catherine

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The Watershed Company
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ATTACHMENT 4

Table of Contents

Section Page

List of Tables

List of Figures

SHORELINE RESTORATION PLAN
CITY OF LAKE STEVENS

1.0 INTRODUCTION

Lake Stevens' Shoreline Master Program applies to activities in the shoreline jurisdiction zone. Activities that have adverse affects on the ecological functions and values of the shoreline must be mitigated. By law, the proponent of that activity is required to return the subject shoreline to a condition equivalent to the baseline level at the time the activity takes place. It is understood that some uses and developments cannot always be mitigated fully, resulting in incremental and unavoidable degradation of the baseline condition. The subsequent challenge is to improve the shoreline over time in areas where the baseline condition is degraded, severely or marginally.

WAC Section 173-26-201(2)(f) of the Shoreline Master Program Guidelines (Guidelines)[1] says:

> "master programs shall include goals and policies that provide for restoration of such impaired ecological functions. These master program provisions shall identify existing policies and programs that contribute to planned restoration goals and identify any additional policies and programs that local government will implement to achieve its goals. These master program elements regarding restoration should make real and meaningful use of established or funded nonregulatory policies and programs that contribute to restoration of ecological functions, and should appropriately consider the direct or indirect effects of other regulatory or nonregulatory programs under other local, state, and federal laws, as well as any restoration effects that may flow indirectly from shoreline development regulations and mitigation standards."

Degraded shorelines are not just a result of pre-Shoreline Master Program activities, but also of unregulated activities and exempt development. The new Guidelines also require that "[l]ocal master programs shall include regulations ensuring that exempt development in the aggregate will not cause a net loss of ecological functions of the shoreline." While some actions within shoreline jurisdiction are exempt from a permit, the Shoreline Master Program should clearly state that those actions are not exempt from compliance with the Shoreline Management Act or the local Shoreline Master Program. Because the shoreline environment is also affected by activities taking place outside of a specific local master program's jurisdiction (e.g., outside of city limits,

[1] The Shoreline Master Program Guidelines were prepared by the Washington Department of Ecology and codified as WAC 173-26. The Guidelines translate the broad policies of the Shoreline Management Act (RCW 90.58.020) into standards for regulation of shoreline uses. See http://www.ecy.wa.gov/programs/sea/sma/guidelines/index.html for more background.

outside of the shoreline area within the city), assembly of out-of-jurisdiction actions, programs and policies can be essential for understanding how the City fits into the larger watershed context. The latter is critical when establishing realistic goals and objectives for dynamic and highly interconnected environments.

Restoration of shoreline areas, in relation to shoreline processes and functions, commonly refers to methods such as re-vegetation, removal of invasive species or toxic materials and removal of bulkhead structures, piers, and docks. Consistent with Ecology's definition, use of the word "restore," or any variations, in this document is not intended to encompass actions that reestablish historic conditions. Instead, it encompasses a suite of strategies that can be approximately delineated into four categories:

- Creation (of a new resource)
- Restoration (of a converted or substantially degraded resource)
- Enhancement (of an existing degraded resource)
- Protection (of an existing high-quality resource).

As directed by the Guidelines, the following discussions provide a summary of baseline shoreline conditions, list restoration goals and objectives, and discuss existing or potential programs and projects that positively impact the shoreline environment. In total, implementation of the Shoreline Master Program (with mitigation of project-related impacts) in combination with this Restoration Plan (for restoration of lost ecological functions that occurred prior to a specific project) should result in a net improvement in the City of Lake Stevens' shoreline environment in the long term.

In addition to meeting the requirements of the Guidelines, this Restoration Plan is also intended to support the City's or other non-governmental organizations' applications for grant funding, and to provide the interested public with contact information for the various entities working within the City to enhance the environment.

2.0 SHORELINE INVENTORY SUMMARY

2.1 Introduction

The City recently completed a comprehensive inventory and analysis of its shorelines (February 2010) as an element of its Shoreline Master Program update. The purpose of the shoreline inventory and analysis was to gain a greater understanding of the existing condition of Lake Stevens' shoreline environment to ensure the updated Shoreline Master Program policies and regulations are well-suited in protecting ecological processes and functions. The inventory describes existing physical and biological conditions in the shoreline zones within City limits and includes recommendations for

restoration of ecological functions where they are degraded. The *Shoreline Analysis Report for the City of Lake Stevens' Shorelines: Lake Stevens, Catherine Creek, and Little Pilchuck Creek* (The Watershed Company and Makers 2010) is summarized below.

2.2 Shoreline Boundary

As defined by the Shoreline Management Act of 1971, shorelines include certain waters of the state plus their associated "shorelands." At a minimum, the waterbodies designated as shorelines of the state are streams whose mean annual flow is 20 cubic feet per second (cfs) or greater and lakes whose area is greater than 20 acres. Shorelands are defined as:

> "those lands extending landward for 200 feet in all directions as measured on a horizontal plane from the ordinary high water mark; floodways and contiguous floodplain areas landward 200 feet from such floodways; and all wetlands and river deltas associated with the streams, lakes, and tidal waters which are subject to the provisions of this chapter…Any county or city may determine that portion of a one-hundred-year-floodplain to be included in its master program as long as such portion includes, as a minimum, the floodway and the adjacent land extending landward two hundred feet therefrom… Any city or county may also include in its master program land necessary for buffers for critical areas (RCW 90.58.030)"

The City adopted Snohomish County's Shoreline Master Program in 1974, the program is presently is in the process of being updated (Makers Architecture/Urban Design and The Watershed Company 2010). This SMP consists of the goals and policies in the City's Comprehensive Plan and provisions in the City's Municipal Code.

Lake Stevens is 1,014 acres and is therefore included in a classification of unique shorelines known as Shorelines of Statewide Significance. The City's shoreline planning area has grown extensively due to multiple annexations around Lake Stevens, and eastward to also encompass the shorelines of Catherine Creek and Little Pilchuck Creek (Figure 1). The 20 cfs cutoff point for Catherine Creek is located at Hartford Drive NE in the City limits. The 20 cfs cutoff point for Little Pilchuck Creek is some distance upstream of the City and the UGA, and wanders in and out of the UGA along the eastern City boundary. Careful consideration of the hydrologic associations of known wetlands around Lake Stevens also resulted in significant expansions of shoreline jurisdiction from what had previously been understood. The entire jurisdiction assessment and determination process can be reviewed in great detail in Appendix C of the Draft City of Lake Stevens Shoreline Master Program (Makers Architecture/Urban Design and The Watershed Company 2010).

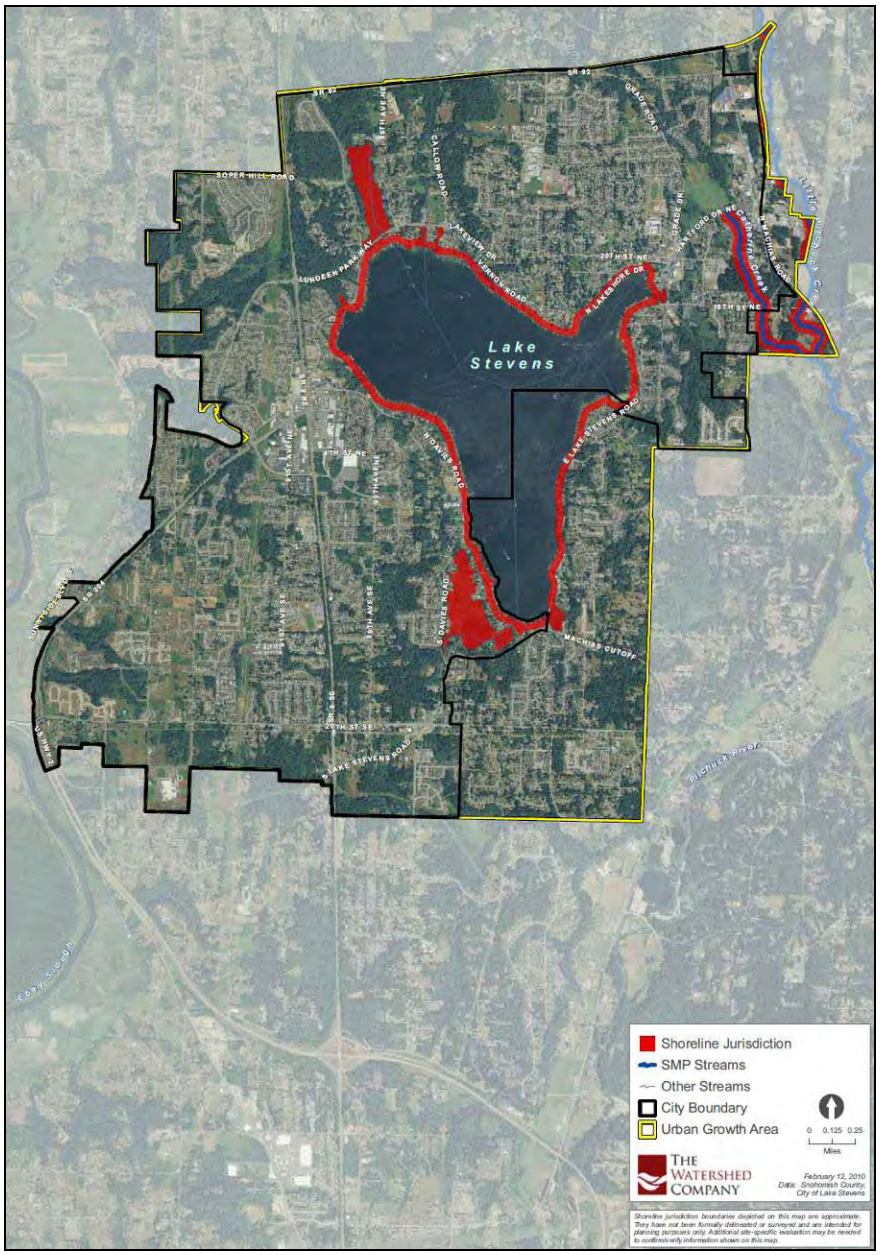

Figure 1. City of Lake Stevens shoreline jurisdiction.

2.3 Inventory

The City of Lake Stevens' shoreline inventory includes all land within the City's proposed shoreline jurisdiction [see Appendix D, Figure 1 of the Final Draft City of Lake Stevens Shoreline Analysis Report (The Watershed Company and Makers 2010)]. Not including aquatic area, the shoreline jurisdiction totals approximately 362 acres (0.57 square miles) in area and encompasses about 9.2 miles of shoreline.

In order to approach analysis of the shoreline in manageable units and allow for comparison among different areas, the shoreline has been divided into six assessment

units based on biological characteristics, dominant land use, and locations within City limits or the Urban Growth Area (UGA) (Figure 2).

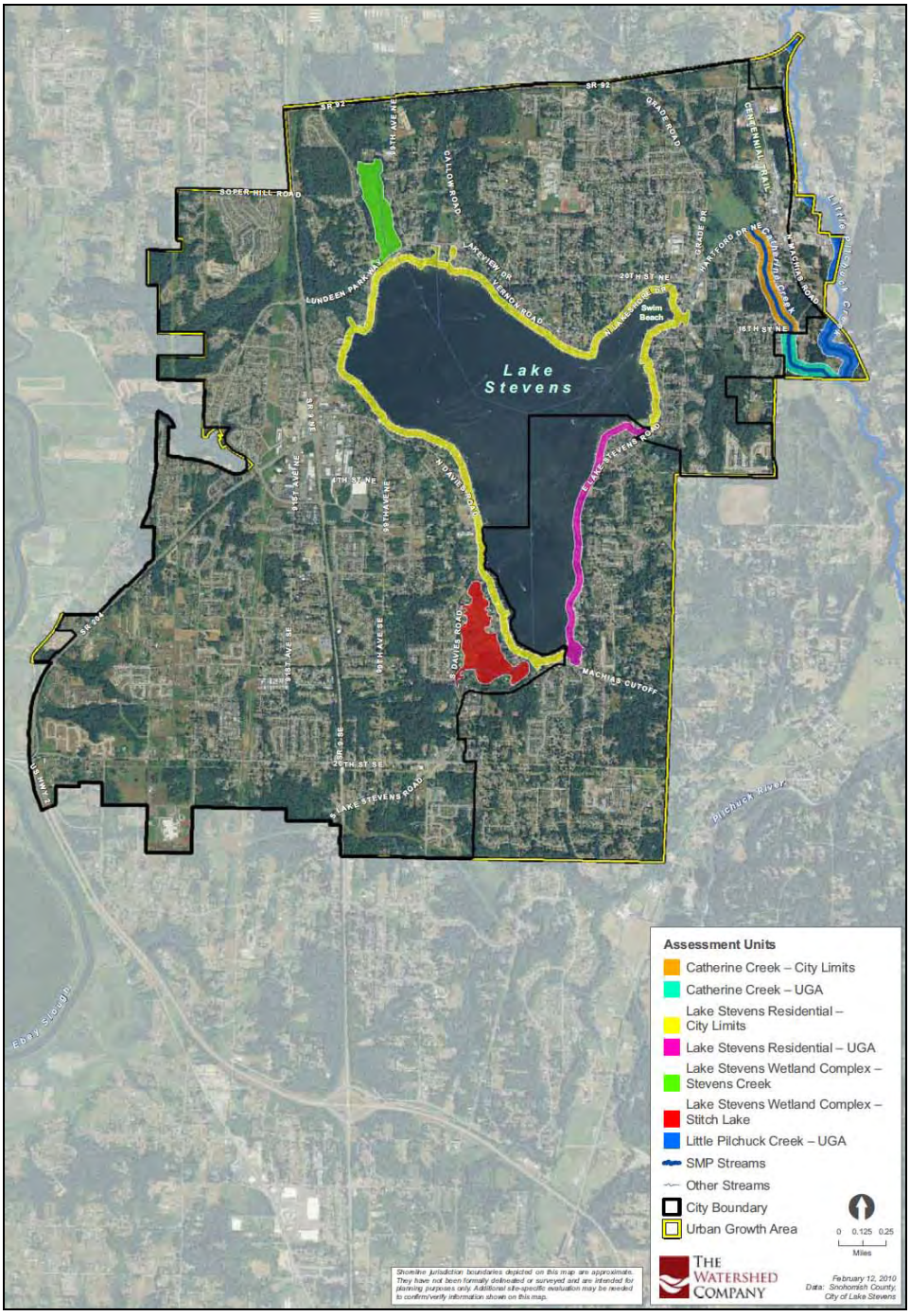

Figure 2. City of Lake Stevens shoreline assessment units.

Table 1 shows the shoreline frontage and acreage of each assessment unit. A summary of inventory and analysis information from the Shoreline Analysis Report (The Watershed Company and Makers 2010) is presented in the following sections.

Table 1. Dimensions of Lake Stevens shoreline assessment units.

Assessment Unit		Shoreline frontage (lineal feet)	Land Area (acres)
Lake Stevens	Residential – City Limits	29,818	144.5
	Residential – UGA	7,557	39.3
	Wetland Complexes[1]	N/A	94.5
Catherine Creek	City Limits	3,212	30.4
	UGA	2,165	19.9
Little Pilchuck Creek	UGA	3,353	33.6
TOTAL		**46,105**	**362.2**

[1] Stevens Creek and Stitch Lake

2.3.1 Land Use and Physical Conditions

The City of Lake Stevens and its UGA are located in west Snohomish County, WA, about midway between the north and south County boundaries. Shoreline jurisdiction includes all area within the City's UGA, whether or not it is within City limits. The entire area is within Washington State's Water Resource Inventory Area (WRIA) 7. Land uses in shoreline jurisdiction are summarized in Table 2 and consist primarily of residential, commercial, industrial, open space, and utilities. Current zoning is used to estimate the relative amounts of each kind of development.

Land cover in shoreline jurisdiction varies among the assessment units. The Lake Stevens Residential units (City Limits and UGA) include the entirety of Lake Stevens, and land use is almost entirely residential, with scattered park properties. The Lake Stevens Wetland Complexes unit is, by comparison, predominantly wetland. It is composed of two large wetland complexes, the northernmost one associated with Stevens Creek and the southern one with Stitch Creek and Stitch Lake. Waterfront residential use in this unit refers to Stitch Lake, as the unit is not contiguous with Lake Stevens.

The Catherine Creek units differ somewhat from one another in land use; City Limits unit consists of more urban residential use, while the UGA unit is zoned residential and has considerably less development overall. The Little Pilchuck Creek assessment unit is a mix of residential and heavy industrial zoning, but current use includes pasture for livestock as well.

The general elements of impervious surface, vegetated (terrestrial) cover, aquatic vegetation, overwater cover, shoreline armoring, and parks are summarized in Table 2 for each assessment unit.

Table 2. Summary of shoreline inventory land use analysis by assessment unit.

Land Use	Shoreline Assessment Unit					
	Lake Stevens			Catherine Creek		Little Pilchuck Creek
	Residential – City Limits	Residential – UGA	Wetland Complexes – Stevens Creek and Stitch Lake	City Limits	UGA	UGA
Development (Current Zoning)	• Waterfront residential - 84% • Suburban residential - 6% • Public/semi-Public - 5% • No zone - 2% • Urban residential - 1% • Mixed use - 1% • Local business - 1% • Central business district - 1% • High urban residential - <1%	• Residential 9,600 – 100%	• Suburban residential - 88% • No zone - 5% • Multi-family residential - 4% • Waterfront residential - 2%	• Urban residential - 71% • Public/semi-public - 13% • Light industrial – 9% • Suburban residential - 3% • No zone - 3%	• Residential 20,000 - 98% • No zone - 1% • Suburban residential - 1%	• Residential 20,000 - 59% • Heavy industrial - 25% • Business park - 6% • Residential 9,600 - 5% • Public/semi-public - 3% • No zone - 2% • General industrial - <1%
Impervious Surface	37%	28%	4%	24%	9%	8%

Land Use	Shoreline Assessment Unit					
	Lake Stevens			Catherine Creek		Little Pilchuck Creek
	Residential – City Limits	Residential – UGA	Wetland Complexes – Stevens Creek and Stitch Lake	City Limits	UGA	UGA
Terrestrial Vegetation	• Coniferous forest - 4% • Shrubland/swamp/ riparian forest - <1% • Unconsolidated shore - <1% • Regenerating forest - <1% • Emergent wetland - <1%	• Coniferous forest - 2% • Unconsolidated shore - 7% • Regenerating forest - 3% • Shrubland/ swamp/ riparian forest - 3%	• Shrubland/swamp /riparian forest - 29% • Coniferous forest - 22% • Open Water - 7% • Emergent wetland - 3% • Regenerating forest - 2% • Pasture - <1%	• Coniferous forest - 31% • Shrubland/ripari an forest - 2% • Regenerating forest - 2% • Emergent wetland - <1%	• Shrubland/sw amp/riparian - 57% • Regenerating forest • Pasture - 1% • Madrone forest - <1% • Emergent wetland - <1%	• Shrubland/swa mp/riparian 48% • Coniferous forest - 14% • Regenerating forest - 14% • Madrone forest - 4% • Pasture - 3%
Aquatic Vegetation	125 ac	25 ac	NA	NA	NA	NA
Overwater Cover	9.9 ac	2.3 acres	NA	NA	NA	NA
Shoreline Armoring	• Bulkhead - 62% • Revetment - 20% • Not armored - 17% • Fill - 1% • Boat ramp - 0.3%	• Bulkhead - 47% • Not armored - 29% • Revetment - 22% • Fill - 1%	NA	NA	NA	NA
Public Access/ Parks	• Wyatt Park • Lundeen County Park • Swim Beach • North Cove Park	• Sunset Park	NA	• Catherine Creek Park	NA	• Centennial Trail

2.3.2 Biological Resources and Critical Areas

The City's shoreline jurisdiction includes Lake Stevens, a designated Shoreline of Statewide Significance based on its size of 1,014 acres. Shoreline jurisdiction also extends eastward to encompass the shorelines of Catherine Creek and portions of Little Pilchuck Creek, where it winds within City limits, north to the Stevens Creek wetland complex, and from the southwest edge of the lake to the Stitch Lake wetland complex (see Figure 2). Biological resources of the Lake Stevens shoreline areas perform hydrologic, vegetative, hyporheic and habitat functions, which are used in the Shoreline Analysis Report to evaluate assessment unit performance, summarized in the following paragraphs and Table 3.

The overall shoreline ecological function of the Lake Stevens Residential – City Limits and UGA units is low. The only functions being performed at a moderate or low-moderate level are wave attenuation, which is in the case of this unit performed by shoreline modifications, and water/sediment storage, performed well by the Lake itself but lacking in surrounding areas.

A previous (2006) assessment of the Stevens Creek (northern component of the Lake Stevens Wetland Complex assessment unit) rated the creek's health as poor to very poor. The Shoreline Analysis Report rates both the north and south complexes together as moderate-high. Habitat functions in particular rate highly, as the wetland complexes provide intact, diverse vegetated areas for reptiles, amphibians, waterfowls, raptors, songbirds and other wildlife.

The Catherine Creek – City Limits assessment unit performs moderate ecological functions. The creek channel lacks woody debris, cover and significant pools, and riparian vegetation is sparse. Bank erosion contributes to poor bed conditions. However, one segment provides a good deal of off-stream refuge during high flow, and water storage and transport, flow attenuation, nutrient removal, and water storage function is moderate in some areas of the floodplain. The Catherine Creek – UGA assessment unit is also of moderate ecological value. Hydrologic functions are performed by the natural and relatively undisturbed floodplain on both sides of the channel, and although the creek lacks woody debris and bedform complexity, riparian vegetation is generally better than in the City Limits unit.

Shoreline functions rate moderately in the Little Pilchuck Creek assessment unit. The stream still flows through fairly wide floodplain, contributing to hydrologic functional value. Much of the UGA portion of the creek is subject to erosion and channel degradation from livestock and associated clearing and channel modifications, however. Timber harvest also contributes to sedimentation issues in the creek. Riparian conditions are mixed, and most active pasture is outside of shoreline jurisdiction, with some large trees still dominating in the unit.

Table 3. Summary of shoreline inventory ecological functions rating by assessment unit

Function	Shoreline Assessment Unit				
	Lake Stevens		Catherine Creek		Little Pilchuck Creek
	Residential – City Limits and Residential – UGA	Wetland Complexes – Stevens Creek and Stitch Lake	City Limits	UGA	UGA
Hydrologic					
Water and sediment storage	Low-Moderate	High	Moderate	Moderate	Moderate
Wave/flow energy attenuation	Moderate	NA	Moderate	Moderate-High	Moderate
Nutrient and toxin removal	Low	Moderate-High	Moderate	Moderate	Moderate
Water and sediment transport	NA	NA	Moderate	Moderate	Moderate
Pool, riffle, gravel bar development	NA	NA	Low-Moderate	Moderate	Low-Moderate
LWD and organics recruitment	Low	Low	Low	Moderate	Moderate
Vegetation					
Temperature regulation	Low	Low	Moderate-Low	Moderate	Low-Moderate
Water quality improvement	Low	Moderate	Moderate	Moderate	Moderate

Function	Shoreline Assessment Unit				
	Lake Stevens		Catherine Creek		Little Pilchuck Creek
	Residential – City Limits and Residential – UGA	Wetland Complexes – Stevens Creek and Stitch Lake	City Limits	UGA	UGA
Wave/flow energy attenuation	Low	NA	Moderate-Low	Moderate-High	Moderate-Low
Sediment removal and bank stabilization	Low	High (sediment storage) NA (bank stabilization)	Moderate	Moderate	Moderate
LWD and organics recruitment	Low	Low (no recruitment to Lake Stevens) High (within the complexes)	Low	Moderate	Moderate
Hyporheic					
Nutrient and toxin removal	NA	NA	Moderate	Moderate	Moderate
Water storage and base flow maintenance	NA	NA	Moderate	Moderate	Moderate
Vegetation support	NA	NA	Moderate	Moderate	Moderate
Habitat					
Area and conditions for species support	Low	High	Moderate-Low	Moderate	Moderate-Low
Food production and delivery	Low	High	Moderate	Moderate	Moderate

Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) maps obtained for this analysis depict state recognized PHS habitat and species occurrences in all assessment units [see the Shoreline Analysis Report, Appendix D, Figure 11 (The Watershed Company and Makers 2010)]. PHS wetlands occur in the Catherine Creek UGA, Lake Stevens Residential and UGA, and the lower (Stitch Lake) Lake Stevens Wetland Complex units. Both Catherine Creek assessment units and the Little Pilchuck Creek unit contain PHS riparian zones. Known PHS wildlife species occurrences are limited to a great blue heron colony in the Stitch Lake Wetland Complex, but two bald eagle nests outside of shoreline jurisdiction have associated shoreline buffer zones that extend to the Lake Stevens City Limits and northern Lake Stevens Wetland Complex units. In addition, steep slopes are present in all assessment units [see the Shoreline Analysis Report, Appendix D, Figure 10 (The Watershed Company and Makers 2010)].

3.0 RESTORATION GOALS AND OBJECTIVES

Goals of the Lake Stevens shoreline restoration plan are designed to promote the recovery of degraded areas and impaired ecological function through restoration strategies and policy. The City of Lake Stevens Comprehensive Plan Critical Areas Element (City of Lake Stevens 2006) developed a list of goals and policies that generally refer to the protection of shorelines, critical areas, vegetation, and water resources, all of which occur within lake Stevens shoreline jurisdiction, and subsequently are applicable to this restoration plan. Goals and policies in the Comprehensive Plan are as follows:

GOAL 10.1 Protect the natural environment and conserve all critical areas, including wetlands, shoreline, creeks/streams, geological hazard areas and wildlife habitat.

POLICIES

10.1.1 Update critical areas regulations which reflect the Best Available Science (BAS) pursuant to the GMA. These regulations must protect the functions and values of these areas and not unduly reduce property rights by requiring greater protection measures which offer diminishing beneficial returns.

10.1.2 Ensure compatibility of land uses with topography, geology, soil suitability, surface water, ground water, frequently flooded areas, wetlands, climate, and vegetation and wildlife.

10.1.3 Prevent a net loss of ecological functions and values. Require mitigation for impacts from new development within critical areas.

10.1.4 Encourage flexibility in design, development such as Conservation Design to utilize cluster development to conserve open space and protect critical areas.

10.1.5 Promote and encourage sustainable development through efficient land use, green building design, and water conservation.

10.1.6 Encourage and support local community programs to enhance natural resources.

10.1.7 The City of Lake Stevens should protect native plant communities by encouraging management and control of non-native invasive plants, including aquatic plants. Environmentally sound methods of vegetation control should be used to control noxious weeds.

10.1.8 Incorporate the use of innovative design provisions allowing design of new development to take advantage of such standards as Low Impact Development surface water techniques that employ inventive proposals ensuring the same or better critical area protection.

GOAL 10.2 Protect habitat areas for fish and wildlife.

POLICIES

10.2.1 Recognize the value of maintaining corridors for fish and wildlife and consider appropriate means of protecting significant corridors.

10.2.2 Protect Lake Stevens' priority habitats, habitats of local importance, and listed species habitats.

10.2.3 Support actions that protect other non-listed threatened species from becoming listed and endangered.

GOAL 10.3 Provide for long-term protection and no net loss of wetland ecological functions and values.

POLICIES

10.3.1 Protect existing wetlands from the impacts of new development to the greatest extent possible.

10.3.2 Protect functions and values of wetlands.

10.3.3 Protect existing wetlands with size greater than one acre that are valuable for wildlife habitat or are not artificially created from non-wetland sites (drainage ditches, grass-lined swales, detention ponds, landscape amenities, etc.).

10.3.4 Require wetland buffers and building setbacks around regulated wetlands to preserve vital wetland functions and values.

10.3.5 Require mitigation for any activity, which alters regulated wetlands and their buffers.

10.3.6 Support wetlands protection through non-regulatory approaches such as the adoption-a-wetland conservation program and low impact development.

10.3.7 Work with the land trust and other similar organizations to protect wetlands and other critical areas.

GOAL 10.4 Enhance the quality of surface water.

POLICIES

10.4.1 Protect water quality from the adverse impacts associated with erosion and sedimentation.

10.4.2 Protect water resources, including surface water, groundwater and critical aquifer recharge areas.

10.4.3 Protect the water quality of the City's creeks and its lake.

10.4.4 Require the use of drainage, erosion and sediment control practices for all construction or development activities.

10.4.5 Protect and preserve vegetation located along creek/stream corridors.

10.4.6 Provide buffers for new development along creeks and streams.

10.4.7 Consider creating a new staff position – "Watershed Seward" to inventory and educate the public on the importance of preserving the surface waters.

GOAL 10.5 Decrease potential for flooding from storm water runoff.

POLICIES

10.5.1 Promote retention of storm water. Encourage regional stormwater treatment solutions.

10.5.2 Preserve natural drainage courses.

10.5.3 Minimize adverse storm water impacts generated by the removal of vegetation and alteration of landforms.

10.5.4 Adopt and encourage incentive programs for new development to use best management practices such as reduction of impervious surfaces and provisions for filtering pollutants.

10.5.5 Encourage and support the retention of natural open spaces or land uses, which maintain hydrologic function and are at low risk to property damage from floodwaters within frequently flooded areas.

GOAL 10.6 Implement the State Shorelines Management Act along shorelines of statewide significance in the current or ultimate city limits of Lake Stevens.

POLICIES

10.6.1 Protect Shorelines by limiting uses and activities, which are incompatible with the shoreline environment.

10.6.2 New development within shoreline jurisdiction shall meet the policy requirements adopted within the City Shoreline Master Program.

10.6.3 Maintain native riparian vegetation encouraging the use of native species for landscaping and mitigation along rivers, creeks/streams and wetlands and discourage the use of invasive plants that threaten native vegetative communities.

10.6.4 Encourage shoreline dependent economic activities along City shorelines that will enhance the economic viability near commercial centers.

10.6.5 Promote development of diverse, convenient recreational opportunities along public shorelines within the City that are consistent with the character and physical limitations of the land.

10.6.6 Extend the Waterfront Residential Zone to shoreline areas as they annex to the City.

10.6.7 Encourage development of pedestrian access along the shoreline where practical.

10.6.8 Require developers to indicate how they plan to preserve shore vegetation and control erosion.

10.6.9 Encourage cluster development wherever feasible to maximize use of the shorelines by residents, maximizing both on-site and off-site aesthetic appeal, and minimizing disruption of the natural shorelines.

10.6.10 Encourage cluster development wherever feasible to maximize use of the shorelines by residents, maximizing both on-site and off-site aesthetic appeal, and minimizing disruption of the natural shoreline.

GOAL 10.7 Promote policies and development standards that minimize the threat of flooding.

POLICIES

10.7.1 Protect natural drainage systems associated with floodways, floodplains or other areas subject to flooding.

10.7.2 Emphasize flood prevention and damage reduction.

GOAL 10.8 Locate development within the most geologically suitable and naturally stable portions of a development.

POLICIES

10.8.1 Classify and designate areas on which development should be prohibited, conditioned, or otherwise controlled because of danger from geologic hazards.

10.8.2 Require geotechnical studies and special engineering or design as necessary for new developments in potential geologically hazardous areas.

10.8.3 Encourage cluster development for new residential development in areas of geologic hazards.

4.0 EXISTING AND ONGOING PROJECTS AND PROGRAMS

The following series of existing projects and programs are generally organized from the larger watershed scale to City-scale, including government-led and non-profit/private organizations active in the Lake Stevens area.

4.1 Washington State Conservation Commission

The completion of the 2002 Salmonid Habitat Limiting Factors Analysis for the Snohomish River Watershed (WRIA) 7) was a collaborative effort of the Washington State Conservation Commission and the Snohomish County Public Works Surface Water Management Division's Snohomish Basin Salmon Recovery Forum. The document identifies areas in the Snohomish watershed in need of protection , as well as data gaps.

4.2 Washington State Department of Ecology

The Draft Initial Watershed Assessment: Water Resource Inventory Area 7, Snohomish River Watershed (Pacific Groundwater Group 1995), guides monitoring and data collection pertaining to water rights and use, water quality, hydrology and fisheries in the watershed.

4.3 Snohomish County Public Works: Surface Water Management

The Snohomish County Public Works Department Surface Water Management Division encompasses several programs that incorporate restoration goals and recovery plans and strategies. These are described in the following sections.

4.3.1 Snohomish Basin Salmon Recovery Forum

The City of Lake Stevens is a member of the Snohomish Basin Salmon Recovery Forum (Forum). Formed in 1998, the Forum completed the 2001 Snohomish River Basin Chinook Salmon Near Term Action Agenda and promotes implementation of the June 2005 Snohomish River Basin Salmon Conservation Plan (Snohomish Basin Salmon Recovery Forum 2005), a guide to protection and restoration actions in the Snohomish River Basin. The Plan is a multi-salmonid strategy emphasizing Chinook, bull trout and coho salmon, using them as proxies for other species as well. Recovery strategies in the Plan are:

1. Protection efforts – this involves acquisitions, regulations, incentives, education and outreach.

2. Restoration efforts – evaluate current/potential fish use, habitat conditions, and watershed conditions; use results to develop an overall basin restoration strategy, identify limiting factors in sub-basins, and develop hypotheses and strategies for each sub-basin group; develop alternatives for focusing efforts, including specific restoration sites; and model Plan alternatives.

3. Harvest and hatchery – this is an ongoing multi-entity effort.

4. Integrated recovery plan – the Plan was developed in a coordinated fashion, addressing habitat, harvest and hatchery together.

5. Adaptive management – governed by monitoring efforts.

The Snohomish River Basin Chinook Salmon Near Term Action Agenda (Snohomish Basin Salmon Recovery Forum 2001) lists the following actions toward protection and restoration of habitat in the basin:

1. Preservation and restoration capital projects

2. Guidance for policies and regulations

3. Education and public outreach

4. Information and research

5. Monitoring and adaptive management

Guiding principles for planning and sequencing the actions are as follows:

- Conserve important habitat areas
- Protect and restore linkages between important habitat areas
- Protect functioning habitat within each sub-watershed
- Conserve areas that contribute to ecosystem processes, which support salmon habitat
- Identify and address risks and time sensitive opportunities
- Focus efforts in sub-watersheds that can support proposed restoration projects

The Near Term Action Agenda includes guidance for prioritizing restoration projects, as well as a protection and restoration strategy. These are described in Section 5.1.2, below.

The 2002 Snohomish River Basin Salmonid Habitat Conditions Review (Snohomish River Basin Salmonid Recovery Technical Committee 2002) rated the condition of habitat elements important to salmon and, while the report does not make restoration recommendations, it identifies data gaps the Lake Stevens and Little Pilchuck Creek drainages. Table 4 summarizes the results of the review.

4.3.2 Critical Areas Monitoring and Adaptive Management Program

The goal of this program is to determine the effectiveness of Snohomish County's critical area regulations in protecting critical areas in the County. The program assesses changes in land cover, shoreline conditions, and chemical and biological conditions in small catchments using remote sensing and other methods.

4.3.3 State of the Lakes Update

The Surface Water Management Division updated its 2003 State of the Lakes Report in 2008 with a report specific to Lake Stevens. The report classifies the Lake Stevens shoreline as the most highly developed in Snohomish County, with more then 8.3 ac of dock coverage and 78 percent shoreline modification. Productivity was categorized as low to moderate, and a trend toward increasing phosphorus concentration in bottom waters was identified. The overall rating of the late was satisfactory, with future risk as water quality declines.

Table 4. Habitat conditions summary for Lake Stevens and Pilchuck Creek drainages (Snohomish River Basin Salmonid Recovery Technical Committee 2002)

Habitat Element	Habitat Condition Rating	
	Lake Stevens	Little Pilchuck Creek
Instream artificial barriers	Moderately degraded	*Data gap*
Sediment	Degraded	*Data gap*
Hydrology	Degraded	Moderately degraded
Water quality	Moderately degraded	*Data gap*
Wetlands/riparian and shoreline vegetation/LWD	Degraded	Degraded
Shoreline condition and floodplain connectivity	Moderately degraded	*Data gap*

4.4 City of Lake Stevens Critical Areas Regulations

The City of Lake Stevens' critical areas regulations are found in Lake Stevens Municipal Code Chapter 14.88. The City completed its last critical areas regulations update in September 2008. The updated regulations are based on best available science, and provide protection to critical areas in the City, including streams, lakes, wetlands, steep slopes, and fish and wildlife conservation areas. Some of the basic components of the critical areas regulations include a six-level stream typing system with standard buffers ranging between 0 and 115 feet, and Ecology's four-tiered wetland rating system with standard buffers ranging from 10 to 150 feet. Management of the City's critical areas using these regulations should help ensure that ecological functions and values are not degraded and impacts to critical areas are mitigated. These critical areas regulations are important tools that will help the City meet its restoration goals.

4.5 City of Lake Stevens Six-Year Transportation Improvement Plan: 2011 to 2016

A number of transportation projects include actions and construction designed to address stormwater runoff in streams draining to Lake Stevens. Minor arterial improvement projects on Hartford Road, Lundeen Parkway, and 20th Street SE incorporated drainage improvements near streams in or adjacent to shoreline jurisdiction.

4.6 City of Lake Stevens Public Works Department

The City's Public Works Department protects wetlands through native growth protection area (NGPA) rules that govern new development adjacent to these critical areas. Rules address grading, structures and non-natural planting, vehicle activity, grazing, vegetation removal, and dumping.

The Department completed a Surface Water Management Program (SWMP), pursuant to the requirements of the City of Lake Stevens NPDES Phase II Municipal Stormwater Permit. The SWMP is designed to protect water quality by reducing discharge of pollutants from the City's storm sewer system. Components of the SWMP include:

1. Public education and outreach to reduce or eliminate behaviors causing adverse water impacts.

2. Public involvement, including roles in stewardship programs and environmental activities.

3. Illicit discharge and elimination detection and removal.

4. Runoff control from new development, redevelopment and construction sites.

5. Pollution prevention and operation and maintenance for municipal operations to reduce or prevent runoff.

The Public Works Department completed a Quality Assurance Project Plan for Lake Stevens and its tributaries in 2008 (City of Lake Stevens Public Works Department 2008), including total maximum daily load (TMDL) monitoring. The plan included the City's goal "*to produce accurate, credible analytical data representative of water bodies from which the data and samples are taken*" and "*to determine areas with highest bacteria concentrations (high priority areas)*."

4.7 City of Lake Stevens Integrated Aquatic Vegetation Management Program

The City of Lake Stevens recently approved an effort to control Eurasian watermilfoil (*Myriophyllum spicatum*) from Lake Stevens through the development of an Integrated Aquatic Vegetation Management Program (IAVMP) in October 2010 (City of Lake Stevens 2010). The IAVMP will attempt to address the aggressive growth of milfoil around the littoral zone of the lake. Per a recent survey conducted in July 2010, milfoil was found to cover over 135 acres of the lake (>10 percent). The City applied for a planning grant from Ecology to develop the IAVMP in the hopes of beginning control and eventually eradicate milfoil from Lake Stevens. The following are basic recommendations from the IAVMP for aquatic plant control in the lake:

- Apply one large scale triclopyr treatment to eliminate the majority of milfoil from the lake.
- Make targeted, small-scale applications of triclopyr to manage small patches of milfoil.
- Conduct ongoing hand-pulling or bottom barrier installation to combat small and recurrent patches of milfoil.

- Conduct annual diver surveys of the littoral zone and quantitative reporting of the acres and locations of identified invasive plants.
- Establish an Aquatic Plant Control Advisory Committee for the lake whose function is to make recommendations annually about controls needed and to review aquatic plant management goals.

4.8 Snohomish Conservation District

Snohomish Conservation District's mission is "*to work cooperatively with others to promote and encourage conservation and responsible use of natural resources*." The District includes Lake Stevens and surrounding areas.

5.0 INVOLVEMENT OF OTHER AGENCIES AND ENTITIES

5.1 Snohomish Basin Salmon Recovery Forum

5.1.1 Snohomish River Basin Recovery Plan

The Snohomish River Basin Salmon Recovery Plan (Snohomish Basin Salmon Recovery Forum 2005), in addition to the general recovery strategies outlined in Section 4.3.1, details recommended actions for sub-basins, including Lake Stevens drainages, which is categorized in the "urban streams" group. The recommended recovery focus for urban streams is "*Habitat restoration and reconnection to maintain current habitat conditions and functions, while accommodating additional urban growth within urban growth areas*." The ecological actions that would contribute to recovery are listed as:

1. Preserve and protect the remaining and best habitat along critical reaches; protect riparian forest, wetlands, floodplains, and inner gorges; maintain opportunity for streams to migrate.

2. Remove human-made instream barriers along or adjacent to priority stream reaches.

3. Restore shorelines by removing riprap and utilizing large woody debris to protect property where necessary.

4. Enhance riparian zones to improve habitat and protect streams from urban impacts.

5. Improve water quality by preventing illegal discharge, bio-filtering surface water, and educating property owners about the impacts of excess fertilizer and pesticide use.

5.1.2 Snohomish River Basin Chinook Salmon Near Term Action Agenda

The Near Term Action Agenda lists six guidance points for prioritizing and implementing important protection and restoration capital projects. These are repeated verbatim below:

CAPITAL PROJECT GUIDANCE 1.

The Forum should continue to develop prioritized project lists for state Salmon Recovery Funding Board funding. It should also create a scientifically-based, prioritized list of projects that can guide the efforts of all organizations in the basin and be suited for a variety of funding sources.

CAPITAL PROJECT GUIDANCE 2.

Where regulations alone are not adequate to achieve habitat protection goals, local governments and non-governmental organizations should preserve and protect habitat using tools such as fee simple acquisitions, conservation easements, purchase or transfer of development rights, and purchase of timber rights where there is a willing seller. Sites should be selected based on the guidance in this document and the watershed priorities established by the Forum.

CAPITAL PROJECT GUIDANCE 3.

Federal, state, and local governments, tribes, and non-governmental organizations should commit resources to restoring and enhancing salmon habitat, based on the guidance in this document and the watershed priorities established by the Forum.

CAPITAL PROJECT GUIDANCE 4.

Project sponsors should provide information about and seek input on proposed acquisition and restoration projects from residents, business interests, community groups, and landowners. Opportunities for public input should be provided throughout project selection, design, and implementation to help gain knowledge about local conditions and concerns.

CAPITAL PROJECT GUIDANCE 5.

Restoration projects, especially dike and levee removal and installation of large woody debris projects, should be scoped and designed using both standard engineering practices and ecological expertise. Methods, effectiveness, and the evaluation of impacts should be monitored and used to inform future decisions about these types of projects.

CAPITAL PROJECT GUIDANCE 6.

Each spring, the Forum should annually review new science and tribal traditional knowledge that be may be available, as well as what has been learned about the functioning of existing projects. This information can be used to evaluate the boundaries of the focus areas, the project list, and

any new project ideas that have been suggested in the focus areas. Potential project sponsors should be notified of the review and encouraged to participate. An updated project idea list should be made available to potential project sponsors.

The guidance goes on to outline a four-component means of approaching restoration capital projects, based on methods used by the Skagit Watershed Council for identifying and prioritizing restoration projects. Briefly, it consists of:

1. A protection and restoration strategy that uses a "focus area concept" of identifying areas with concentrated Chinook spawning, rearing, and/or refugia and identifying appropriate habitat projects in these areas.

2. Project development guidelines for specific projects as they are developed. This may include guiding feasibility studies, permitting, funding accrual, regulation compliance, and other needed steps.

3. A focus areas and project idea list of projects in stages of conceptual development.

4. General guidance for other projects, including acquiring sensitive areas, restoring riparian zones, eliminating fish passage barriers, restoring floodplain migration and wetlands, installing woody debris, relocating or decommissioning roads, and stabilizing human-caused landslides.

5.2 Lake Stevens Planning and Community Development Department

The City's Planning and Community Development Department contracted the completion of a Best Available Science document (URS 2008). This report was to ensure that the best information available is used to guide policy and recommendations pertaining to salmonid habitat and critical areas. The Department also oversees parks in the City, including Catherine Creek Park, North Cove Park, Lundeen County Park, and Wyatt Park, which occur fully or partially within shoreline jurisdiction.

The Planning and Community Development Department adopted the City of Lake Stevens Design Guidelines in April 1995 (Makers 1992). The following Guidelines elements are intended to protect the natural environment:

1. Sensitive areas
    a. Protecting sensitive areas from development
    b. Reducing impacts on steep slopes
    c. Encouraging appropriate stormwater management
    d. Minimizing damaging surface grading
2. Stormwater Management

a. Reducing stormwater runoff using natural infiltration methods

3. Significant Trees
   a. Retaining visual character of the landscape
   b. Preserving physical and aesthetic character
   c. Minimizing surface runoff to prevent erosion

5.3 Shared Strategy for Puget Sound

Shared Strategy for Puget Sound is a collaborate effort supported by state and federal agencies, local governments and non-government organizations, and legislators, aimed at encouraging recovery plans to protect and restore salmon runs in Puget Sound. Policies and actions put forth by the group for the Snohomish River Basin are to:

1. Coordinate critical areas regulation and SMP updates to better integrate salmon recovery planning in areas most likely to be affected by growth and development.

2. Focus efforts on mainstem rivers, building on implemented restoration efforts and working with farmers and other landowners.

3. Protect estuary habitat and, specifically, reconnect blind tidal channel sloughs and restore edge complexity along mainstems and sloughs.

5.4 Puget Sound Partnership

The Puget Sound Partnership consists of representatives from a variety of interests from the Puget Sound region including business, agriculture, the shellfish industry, environmental organizations, local governments, tribal governments, and the Washington state legislature. Some of the Partnership's key tasks are as follows:

- Develop a set of recommendations for the Governor, the Legislature and Congress to preserve the health of Puget Sound by 2020 and ensure that marine and freshwaters support healthy populations of native species as well as water quality and quantity to support both human needs and ecosystem functions.

- Engage citizens, watershed groups, local governments, tribes, state and federal agencies, businesses and the environmental community in the development of recommendations.

- Review current and potential funding sources for protection and restoration of the ecosystem and, where possible, make recommendations for the priority of expenditures to achieve the desired 2020 outcomes.

The Partnership through the Leadership Council released an Action Agenda in December 2008. Implementation of this Action Agenda has resulted in State and Federal

funding of restoration and protection initiatives and projects. This includes integrating the work of the Puget Sound Nearshore Restoration Project to increase focus on completing work necessary to request Puget Sound restoration funds under the Water Resources Development Act slated for 2012.

6.0 STRATEGIES TO ACHIEVE LOCAL RESTORATION GOALS

This section discusses programmatic measures for the City of Lake Stevens designed to foster shoreline restoration and achieve a net improvement in shoreline ecological processes, functions, and habitats. With projected budget and staff limitations, the City of Lake Stevens does not anticipate leading most restoration projects or programs. However, the City's SMP represents an important vehicle for facilitating and encouraging restoration projects and programs that could be led by private and/or non-profit entities. The discussion of restoration mechanisms and strategies below highlights programmatic measures that the City may potentially implement as part of the proposed SMP, as well as parallel activities that would be led by other governmental and non-governmental organizations.

6.1 Implementation of the Snohomish River Basin Near Term Action Agenda

This document includes recommended preservation and restoration projects, as well as detailed guidance for implementation. It provides guidance for employing policies and regulations, education and public outreach, information and research, and monitoring and adaptive management in protecting and restoring salmon habitat in the Snohomish Basin. Additionally, it includes potential funding sources and a long-term oversight strategy.

6.2 Capital Facilities Plans

The City could incorporate a shoreline restoration goal in capital facilities plans and improvement projects. Some projects in the current six-year transportation plan include improvements in and near streams, making them candidates for restoration components (see also Section 4.4).

6.3 Development Opportunities

When shoreline development occurs, the City has the ability to look for opportunities to conduct restoration in addition to minimum mitigation requirements as part of the SMP. Development may present timing opportunities for restoration that would not otherwise occur and may not be available in the future. Mitigation may also allow for "banking"

opportunities. In certain cases, on-site mitigation opportunities are limited due to building site constraints, limited potential ecological gains, or other site-specific factors. In these instances, the City shoreline administrator could identify an off-site mitigation opportunity that could be restored in lieu of on-site mitigation.

6.4 Development Incentives

Through the SMP, the City may provide development incentives for restoration, including the waiving of some or all of the development application fees, infrastructure improvement fees, or stormwater fees. This may serve to encourage developers to try to be more imaginative or innovative in their development designs to include more access and preservation.

6.5 Tax Relief / Fee System

A tax relief/fee system to directly fund shoreline restoration measures is being investigated under the SMP. One possibility is to have the City work with the county to craft a preferential tax incentive through the Public Benefit Rating System administered by the County under the Open Space Taxation Act (RCW 84.34) to encourage private landowners to preserve natural shore-zone features for "open space" tax relief. Ecology has published a technical guidance document for local governments who wish to use this tool to improve landowner stewardship of natural resources. More information about this program can be found at http://www.ecy.wa.gov/biblio/99108.html. The guidance in this report provides technically based property selection criteria designed to augment existing open space efforts with protection of key natural resource features that directly benefit the watershed. Communities can choose to use any portion, or all, of these criteria when tailoring a Public Benefit Rating System to address the specific watershed issues they are facing.

A second possibility is a Shoreline Restoration Fund. A chief limitation to implementing restoration is local funding, which is often required as a match for State and federal grant sources. To foster ecological restoration of the City's shorelines, the City may establish an account that may serve as a source of local match monies for non-profit organizations implementing restoration of the City's shorelines. This fund may be administered by the City shoreline administrator and be supported by a levy on new shoreline development proportional to the size or cost of the new development project. Monies drawn from the fund would be used as a local match for restoration grant funds, such as the Salmon Recovery Funding Board (SRFB), Aquatic Lands Enhancement Account (ALEA), or another source.

6.6 Shore Stewards Education

Shore Stewards is a volunteer program in which shoreline property owners and residents of waterfront communities with shared beach access voluntarily follow ten

wildlife-friendly guidelines in caring for their beaches, bluffs, gardens and homes. These guidelines help them create and preserve a healthy shoreline environment for fish, wildlife, birds and people. This program was created to help shoreline residents feel more connected to the nearshore ecosystem because it is found that when people understand the natural processes at work on their beaches, they may play a more active, positive role in the preservation of healthy, fish-friendly wildlife habitats.

The ten Shore Stewards guidelines for shoreline living are:

1. Use water wisely.
2. Maintain your septic or sewer system.
3. Limit pesticide and fertilizer usage.
4. Manage upland water runoff.
5. Encourage native plants and trees.
6. Know permit procedures for shoreline development.
7. Develop on bluffs with care.
8. Minimize bulkheads, docks and other structures.
9. Respect intertidal life.
10. Preserve eelgrass beds and forage fish spawning habitat.

Shore Stewards was created in 2002 with grant funding by the Island County Marine Resources Committee. The pilot program was launched on Camano Island by a dedicated group of Washington State University (WSU) Beach Watchers, who wrote the resource-packed Shore Stewards Guide. Shore Stewards is now expanding to other counties of Puget Sound.

6.7 Stewardship Certification Process

The Shore Stewards program sets up guidelines for shoreline residents to preserve and enhance the shoreline environment. With a verification component, Shore Stewards could provide certification and tracking. This could be implemented as a Shoreline Tax Incentives program when someone participates in the WDFW backyard sanctuary program. Since the City recognizes that there are important opportunities to improve shoreline ecological conditions and functions through non-regulatory, volunteer actions by shoreline residents and property owners, it might examine the potential for property tax breaks for shoreline property owners who actively manage their property for habitat protection or enhancement. To encourage volunteer actions that improve shoreline ecological functions, shoreline property owners actively participating in the WDFW backyard sanctuary program or some similar program could receive, for example, a 5% credit on their City property taxes.

A small demonstration restoration project that included a variety of techniques could be completed by the City as an example for others. The City could also identify a set of demonstration restoration projects (which have broad public support), then actively solicit entities to implement one or more of them. The City should also encourage participation in WDFW backyard sanctuary program and other citizen-oriented conservation programs.

6.8 Resource Directory

Development of a resource list would be helpful in aiding property owners who want to be involved in restoration. Examples of grant programs that could be included are:

Landowner Incentive Program (LIP): This is a competitive grant process to provide financial assistance to private individual landowners for the protection, enhancement, or restoration of habitat to benefit species-at-risk on privately owned lands.

Salmon Recovery Funding Board (SRFB) Grant Programs: SRFB administers two grant programs for protection and/or restoration of salmon habitat. Eligible applicants can include municipal subdivisions (cities, towns, and counties, or port, conservation districts, utility, park and recreation, and school districts), tribal governments, state agencies, nonprofit organizations, and private landowners.

6.9 Volunteer Coordination

The City will continue to emphasize and accomplish restoration projects by using community volunteers, as has been achieved for Parks projects and is called for in the Parks and Recreation Element of the Comprehensive Plan. The City can also coordinate with groups such as EarthCorps, Washington Conservation Corps, Washington Native Plant Society, and the Snohomish County Surface Water Management Division, which already have volunteer programs in place.

6.10 Regional Coordination

The City will continue its association and active involvement with the Snohomish Basin Salon Recovery Forum. The City may also look for other opportunities for involvement in regional restoration planning and implementation.

7.0 PROPOSED IMPLEMENTATION TARGETS AND MONITORING METHODS

7.1 Project Evaluation

When a restoration project is proposed for implementation by the City, other agency, or by a private party, the project should be evaluated to ensure that the project's objectives are consistent with those of this Restoration Plan of the SMP and, if applicable, that the project warrants implementation above other candidate projects. It is recognized that, due to funding sources or other constraints, the range of any individual project may be narrow. It is also expected that the list of potential projects may change over time, that new projects will be identified and existing opportunities will become less relevant as restoration occurs and as other environmental conditions, or our knowledge of them, change.

When evaluating potential projects, priority should be given to projects most meeting the following criteria:

- Restoration meets the goals and objectives for shoreline restoration.
- Restoration of processes is generally of greater importance than restoration of functions.
- Restoration avoids residual impacts to other functions or processes.
- Projects address a known degraded condition.
- Conditions that are progressively worsening are of greater priority.
- Restoration has a high benefit to cost ratio.
- Restoration has a high probability of success.
- Restoration is feasible, such as being located on and accessed by public property or private property that is cooperatively available for restoration. Restoration should avoid conflicts with adjacent property owners.
- There is public support for the project.
- The project is supported by and consistent with other restoration plans.

The City should consider developing a project "score card" as a tool to evaluate projects consistent with these criteria.

7.2 Monitoring and Adaptive Management

In addition to project monitoring required for individual restoration and mitigation projects, the City should conduct system-wide monitoring of shoreline conditions and development activity, to the degree practical, recognizing that individual project

monitoring does not provide an assessment of overall shoreline ecological health. The following three-prong approach is suggested:

1. Track information using the City's permit system as activities occur (development, conservation, restoration and mitigation), such as:

    a. New shoreline development

    b. Shoreline variances and the nature of the variance

    c. Compliance issues

    d. New impervious surface areas

    e. Number of pilings

    f. Removal of fill

    g. Vegetation retention/loss

    h. Bulkheads/armoring

    The City may require project proponents to monitor as part of project mitigation, which may be incorporated into this process. Regardless, as development and restoration activities occur in the shoreline area, the City should seek to monitor shoreline conditions to determine whether both project specific and SMP overall goals are being achieved.

    2. Re-review status of environmental processes and functions at the time of periodic SMP updates to, at a minimum, validate the effectiveness of the SMP. Re-review should consider what restoration activities actually occurred compared to stated goals, objectives and priorities, and whether restoration projects resulted in a net improvement of shoreline resources.

    Under the Shoreline Management Act, the SMP is required to result in no net loss of shoreline ecological functions. If this standard is found to not be met at the time of review, the City will be required to take corrective actions. The goal for restoration is to achieve a net improvement. The cumulative effect of restoration over time between reviews should be evaluated along with an assessment of impacts of development that is not fully mitigated to determine effectiveness at achieving a net improvement to shoreline ecological functions.

    Evaluation of shoreline conditions, permit activity, policy, and regulatory effectiveness should occur at varying levels of detail consistent with the Comprehensive Plan update cycle. A complete reassessment of conditions, policies and regulations should be considered every seven years. To conduct a valid reassessment of the shoreline conditions every seven years, it is necessary to monitor, record and maintain key environmental metrics to allow a comparison with

baseline conditions. As monitoring occurs, the City should reassess environmental conditions and restoration objectives. Those ecological processes and functions that are found to be worsening may need to become elevated in priority to prevent loss of critical resources. Alternatively, successful restoration may reduce the importance of some restoration objectives in the future.

7.3 Reporting

The restoration opportunities presented in this document are based upon a detailed inventory and analysis of shoreline conditions by many sources. Nonetheless, exhaustive scientific information about shoreline conditions and restoration options is cost prohibitive at this stage. Additionally, restoration is at times experimental. Monitoring must be an aspect of all restoration projects. Information from monitoring studies will help demonstrate what restoration is most successful. Generally, conservation of existing natural areas is the least likely to result in failure.

This Restoration Plan does not provide a comprehensive scientific index of restoration opportunities that allows the City to objectively compare opportunities against each other. If funding was available, restoration opportunities could be ranked by which opportunities are expected to have the highest likelihood of success, which address the most pressing needs, and other factors. Funding could also support a long-term monitoring program that evaluates restoration over the life of the SMP (as opposed to independent monitoring for each project). However, the following table (Table 5) outlines a possible schedule and funding sources for implementation of a variety of efforts that could improve shoreline ecological function, and are described in previous sections of this report.

Table 5. Implementation Schedule and Funding for Restoration Projects, Programs and Plans

Restoration Project/Program	Schedule	Funding Source or Commitment
Snohomish Basin Salmon Recovery Forum	Ongoing	The City is an active member of the Forum and promotes implementation of the 2005 Snohomish River Basin Salmon Conservation Plan and the 2001 Snohomish River basin Chinook Salmon Near Term Action Agenda.
Washington Department of Ecology	Ongoing	The City has adopted the latest edition of the State Department of Ecology's Stormwater Management Manual for the Puget Sound Basin.
Snohomish County Public Works: Surface Water Management	Ongoing	The City has met NPDES Phase II Municipal Stormwater Permit requirement for development of a Surface Water Storm Management Program (SWMP). The SWMP commits the City to education and outreach, public involvement, detection and enforcement, stormwater control, and pollution prevention.

Restoration Project/Program	Schedule	Funding Source or Commitment
Comprehensive Plan	Ongoing	The City makes a substantial commitment of staff time in the course of project and program reviews to determine consistency and compliance with the recently updated Comprehensive Plan.
Critical Areas Regulations	Revised in September 2008	The City makes a substantial commitment of staff time in the course of project and program reviews to determine consistency and compliance with their recently updated Critical Areas Regulations.
City of Lake Stevens 6-Year Transportation Improvement Plan	Completed in 2009	Most projects are in process or have had state (WSDOT) and/or local funds committed; federal funding is also possible in some cases.

City planning staff is encouraged to track all land use and development activity, including exemptions, within shoreline jurisdiction, and may incorporate actions and programs of the other departments as well. A report may be assembled that provides basic project information, including location, permit type issued, project description, impacts, mitigation (if any), and monitoring outcomes as appropriate. Examples of data categories might include square feet of non-native vegetation removed, square feet of native vegetation planted or maintained, reductions in chemical usage to maintain turf, linear feet of eroding stream bank stabilized through plantings, or linear feet of shoreline armoring removed. The report would also outline implementation of various programs and restoration actions (by the City or other groups) that relate to watershed health.

The staff report may be assembled to coincide with Comprehensive Plan updates and may be used, in light of the goals and objectives of the Shoreline Master Program, to determine whether implementation of the SMP is meeting the basic goal of no net loss of ecological functions relative to the baseline condition established in the *Inventory and Analysis Report*. In the long term, the City should be able to demonstrate a net improvement in the City of Lake Stevens' shoreline environment.

8.0 REFERENCES

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No Net Loss Report Summary

City of Lake Stevens
Shoreline Master Program Update
12-15-10

Background:

This No Net Loss (NNL) Summary provides an overall review of how the City of Lake Stevens meets the NNL requirement per Washington Department of Ecology Guidelines and should be used in conjunction with the other supporting documents produced during the City's Shoreline Master Program (SMP) Update. This summary focuses on reporting how Ecological functions, as well as Public Access and Shoreline Use objectives have been met through the development of the SMP and will not be degraded or minimized over time as the SMP is implemented. Other products developed in support of the SMP include:

- Shoreline Analysis Report
- Cumulative Impacts Analysis
- Shoreline Restoration Plan

Lake Stevens is 1,014 acres, and is therefore included in a classification of unique shorelines known as Shorelines of Statewide Significance. The City's shoreline planning area has grown extensively due to multiple annexations around Lake Stevens, and eastward to also encompass the shorelines of Catherine Creek (downstream of Hartford Drive) and Little Pilchuck Creek. Careful consideration of the hydrologic associations of known wetlands around Lake Stevens also resulted in significant expansions of shoreline jurisdiction from what had previously been understood.

The Lake Stevens shoreline is highly developed, primarily with single-family residential uses (>90 percent) combined with local public parks. Only a small portion of shoreline is zoned for commercial use. The residential and recreational use of Lake Stevens has significantly altered the historical ecological functions supporting the shoreline. This includes the five public parks located at various locations around the lake. The result is a baseline condition of ecological functions that are highly degraded in the residential areas. Nearly 80 percent of the shoreline is armored and over 80 percent of the vegetation has been altered.

As provided in the table below and further supported in the Cumulative Impacts Analysis, future implementation of the City's proposed SMP is believed to result in no net loss of ecological functions. Potential restoration actions, as described in the Shoreline Restoration Plan, may help improve ecological functions in the future. As well, public access to the shoreline and shoreline uses are preserved, and where possible, enhanced.

FUNCTION/OBJECTIVE	LOSS OF FUNCTION OR OBJECTIVE	GAIN IN FUNCTION OR VALUE	NET IMPACT ON FUNCTION OR OBJECTIVE
Ecological			
Hydrologic Functions	**Lake Stevens** As most of the residential shoreline is already developed (approximately 80% of shoreline is armored and over 80% of vegetation has been altered), future new development is likely to have only a moderate affect on existing baseline hydrologic functions. These may include: • Degradation of water quality through the application of additional chemicals, fertilizers and pesticides. • Decrease in natural shorelines to attenuate wave energy as new and modified shoreline armoring is constructed.	**Lake Stevens** Vegetation standards for new shoreline developments and re-development of existing property has the potential to improve water quality by removing chemical, fertilizers and pesticides from surface water runoff. New armoring is only allowed when necessary to protect existing primary structures. When new, expanded or replaced armoring is proposed, soft armoring techniques must be explored first. The application of soft armoring techniques will likely be the most widely used form of shoreline armoring in the future due to the combined regulations of the City's SMP and WA State Department of Fish and Wildlife.	**Lake Stevens** Limited new development is expected in the future. While generally, new and redevelopment has the potential to degrade the baseline condition, strict implementation of the SMP and the critical areas regulations for jurisdictional wetlands should minimize impacts. Redevelopment of existing shoreline property will be the most prevalent shoreline development activity in future years. As such, mitigation for potential setback reductions, which includes removal of substantial shoreline hardening and/or supplementation of native shoreline plantings, should improve hydrologic functions in developed residential areas over the long term.
	Creeks Slight changes to water quantity related to surface runoff may increase with more commercial/industrial development. This may negatively impact stream habitat (loss of channel roughness) and the ability of the corridor to remove contaminants. Future development of commercial/industrial uses may impact water quality by increasing the likely application of chemicals, fertilizers and pesticides.	**Creeks** Future development would adhere to stormwater management requirements to mitigate loss of function (i.e. account for expanded impervious surfaces via detention and infiltration mechanisms).	**Creeks** New development has the potential to degrade the baseline condition in these areas. This may include loss of vegetation and increase in impervious surfaces. Strict adherence to the SMP and critical areas regulations (specifically stream buffers) are necessary to ensure no net loss of functions in this area.
Hyporheic Functions	**Lake Stevens** N/A	**Lake Stevens** N/A	**Lake Stevens** N/A
	Creeks Future development may increase impervious surface cover which in turn will reduce infiltration and the ability of hyporheic areas to remove excess nutrients and contaminants. However, the soils within these shoreline streams are largely fine-grained and not as conducive to hyporheic flow as a coarser substrate would be, thereby limiting the natural potential for hyporheic removal of excess nutrients and toxic compounds.	**Creeks** Very little loss or gain in hyporheic function is anticipated over time as the soils in the vicinity are not very conducive to hyporheic flow.	**Creeks** No significant change in function is expected as the soils in the vicinity are not very conducive to hyporheic flow.
Vegetative Functions	**Lake Stevens** As stated above, most of the residential shoreline is already developed. Therefore, future new development is likely to have only a moderate affect on existing baseline vegetative functions. For instance, on newly developed lots, the SMP will require vegetation to be retained along the shoreline within 20 feet from the OHWM. Redevelopment of existing residential uses, especially those that expand existing building footprints, has the potential to reduce vegetative cover. This, along with the potential increase in chemical, fertilizer, and pesticide applications associated with enhanced landscapes, could potentially lead to further water quality degradation. It should be noted that the City has a maximum impervious surface	**Lake Stevens** Increased vegetation coverage may occur through implementation of development regulations which require shoreline planting areas for new development and the potential enhancement of vegetation for redevelopments which involve setback reductions. Some pier replacement projects may also include revegetation standards. Enhancements to vegetative cover, specifically those adjacent to the shoreline, will have beneficial effects to water quality functions.	**Lake Stevens** Revegetation standards adjacent to shore are likely to provide net overall improvements to vegetative water quality functions and off-set potential negative impacts from new or expanded development footprints and loss of existing vegetation.

FUNCTION/OBJECTIVE	LOSS OF FUNCTION OR OBJECTIVE	GAIN IN FUNCTION OR VALUE	NET IMPACT ON FUNCTION OR OBJECTIVE
	requirement on single-family residential lots. Other vegetative functions, such as attenuation of wave energy, temperature regulation, and LWD recruitment, are not likely to have a significant change from the baseline condition.		
	Creeks Potential development or redevelopment within established 150-foot buffer zones has the potential to negatively affect vegetative functions. Most likely, these negative effects would include a potential reduction in the ability of vegetation to remove contaminants. Future development is unlikely to affect the riparian areas immediately adjacent to the streams and thus other vegetative functions, including streambank stability and flow attenuation, should not experience further degradation.	**Creeks** Enhancement of vegetative conditions (i.e. invasive removal, native replanting with trees and shrubs) along both stream corridors through implementation of the critical areas regulations, including mitigation for development impacts, may improve native vegetative cover in the immediate riparian area. This may have several beneficial effects, but in terms of vegetative functions, these actions may improve shading conditions (temperature regulation), stabilize streambanks, and provide recruitment of in-stream material (woody debris and food sources).	**Creeks** New development has the potential to degrade the baseline condition in these areas. This may include loss of vegetation and increase in impervious surfaces. Strict adherence to the SMP and critical areas regulations would ensure no net loss of functions in this area.
Habitat Functions	**Lake Stevens** Aquatic habitats may be affected over time by the continued degradation of water quality (loss of condition), the proliferation of invasive aquatic weeds such as milfoil (loss of space), and the continued degradation of nearshore environments through the presence of shoreline armoring. Terrestrial environments would mainly be affected through the loss of vegetation as described above under Vegetative Functions.	**Lake Stevens** Future planned restoration measures (e.g., Aquatic Plant Management Plan) to remove milfoil have the potential to vastly improve nearshore habitat conditions for aquatic species. Improvements to vegetative cover along shore as described above has the potential to improve both aquatic habitats (improved water quality – i.e. condition) and terrestrial habitats (improved space and food sources).	**Lake Stevens** Although continued degradation of aquatic and terrestrial habitats may occur through existing and ongoing uses, planned improvements to aquatic nearshore environments (milfoil removal) and required enhancements (revegetation and soft shoreline armoring) are likely to improve the overall habitat functions in Lake Stevens.
	Creeks As discussed above under Vegetative Functions, future development is unlikely to affect the riparian areas immediately adjacent to the streams but rather more likely to affect vegetated areas setback from the stream. Therefore, loss of physical habitat space and negative impacts to overall habitat conditions, including food production and delivery, would likely affect terrestrial species more than aquatics.	**Creeks** Enhancement of native vegetation as described under Vegetative Functions above, would likely improve habitat functions for both terrestrial and aquatic species by providing additional habitat niches (e.g. accumulated wood/snags, pools and off-channel areas) and food resources.	**Creeks** New development has the potential to degrade the baseline condition in these areas. This may include loss of vegetation and increase in impervious surfaces. Strict adherence to the SMP and critical areas regulations would ensure no net loss of functions in this area.
Public Access			
Recreation Opportunities	No loss of access is allowed in the SMP with additional access required on plats of more than four lots and new commercial or public development. Public access is not required along the creeks unless there is already a park because no other opportunities exist that would not create unavoidable safety and security problems.	City is undertaking a study that may add waterfront park improvements. There may be some improvements to an existing marina that will include water-enjoyment uses.	In the future, if there are any changes in the City's public access opportunities it will likely be an increase in the size and attractiveness of existing parks and public access.
Visual	SMP maintains current height and bulk limits	Building setbacks, limitations on floating elements (including inflatable structures) and incentives for more natural shoreline edge should reduce the "visual clutter" on the shoreline	No significant changes are expected but a general reduction of over water elements is expected.
Miscellaneous	Water enjoyment uses (e.g.: food concessions, etc.) are allowed in the	The City is considering a future downtown subarea plan that will likely result in greater intensity of	The City's planning efforts point to the Lake taking a more prominent

FUNCTION/OBJECTIVE	LOSS OF FUNCTION OR OBJECTIVE	GAIN IN FUNCTION OR VALUE	NET IMPACT ON FUNCTION OR OBJECTIVE
	parks with a 60' shoreline setback.	activities near (but not necessarily within) shoreline jurisdiction. Currently, two rowing clubs and many triathlons use Lake Stevens to hold competitions, some are national and international events. This will accentuate the downtown waterfront park's prominence as a destination.	recreational and civic role.
Shoreline Use			
Water-Dependent	There is very little opportunity for changes in water dependent uses. Non-water oriented uses are allowed on creeks, where there is a 160' setback and no navigability. Also, non-water oriented uses are allowed	New marinas are prohibited but provisions for existing marinas encourage the enhancement of boating activities.	While single family residential uses will continue to be the overwhelming use on the lake. Water oriented uses, if anything will increase. Preservation of ecological functions will be the primary focus on the City's creeks. In general, the objectives of RCW 90.58.020 will be more effectively addressed due to SMP regulations and other planning/community development activities.
Water-Related	Future use of a developed, but unused marina could add new water-related uses such as gas sales, small store, or restaurant. Future development of downtown may also include similar types of water-related uses.	Future development of the downtown subarea and an existing, unused commercial marina could enhance water-related uses.	Future development of the downtown subarea and an existing, unused commercial marina could enhance water-related uses.
Water-Enjoyment	Most of the City is within views of the lake and four public parks exist on the lake. Water-enjoyment is available on many roads surrounding the lake with views to the lake.	Lake activities occur throughout the year with more occurring in warmer months. Two rowing clubs use the lake. Public access points around the lake allow for public enjoyment. Additional development in the downtown and commercial properties could increase water-enjoyment uses. Many yearly events actively use the lake (e.g., Aquafest, triathlons, rowing competitions, etc.).	Water enjoyment uses will continue to be a strong emphasis for the City and should increase.

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NOTICE OF SPECIAL MEETING

Notice is hereby given that the Lake Stevens City Council will conduct a special meeting in accordance with RCW 42.30.080.

Purpose of Meeting:

Action Items:

1. Approve Resolution No. 2011-1 declaration of emergency for the immediate repair of Lake Stevens outfall west bank and Main Street, south of 20th Street NE
2. Adjourn

Workshop to follow

Meeting Place: Lake Stevens School District Educational Services Center (Admin. Bldg.)
12309 22nd Street NE
Lake Stevens, WA

Meeting Date/Time: Monday, February 7, 2011, 7:00 p.m.

Notice Delivered/Mailed To: Lake Stevens City Council
Lake Stevens Journal
Herald

Posted: Lake Stevens City Hall