

Draft Cumulative Impacts Analysis

SHORELINE MASTER PROGRAM CITY OF MAPLE VALLEY

December 3, 2019

Prepared on behalf of:



City of Maple Valley
Community Development
22017 SE Wax Road, Suite 200
Maple Valley, WA 98038

Prepared with funding from:





750 Sixth Street South
Kirkland, WA 98033

p 425.822.5242

f 425.827.8136

watershedco.com

Reference Number: 180731

Table of Contents

	Introduction	1
	1.1 Background & Purpose	1
	1.2 Approach	1
1.	Summary of Existing Conditions	3
	Summary of Regulatory Programs	5
2.	3.1 City Regulations	5
3.	3.1.1 Critical Area Regulations	5
	3.1.2 Zoning Code	6
	3.2 State Agencies/Regulations	6
	3.2.1 Washington Department of Ecology	6
	3.2.2 Washington Department of Fish and Wildlife	6
	3.3 Federal Agencies/Regulations	7
	3.3.1 Clean Water Act	7
	3.3.2 Endangered Species Act	8
4.	Application of the SMP	8
	4.1 Environment Designations	9
	4.2 Shoreline Critical Areas Regulations	10
	4.2.1 Wetlands	10
	4.2.2 Streams	11
	4.3 Mitigation Sequencing	11
	4.4 Shoreline Use & Modification Regulations	11
	4.4.1 Agriculture	12
	4.4.2 Aquaculture	12
	4.4.3 Boating Facilities	12
	4.4.4 Commercial Development	13
	4.4.5 Docks, Piers and Floats	13
	4.4.6 Dredging and Dredge Material Disposal	14
	4.4.7 Fill and Excavation	14
	4.4.8 Forestry	15
	4.4.9 Industrial Development	15
	4.4.10 Mining	15
	4.4.11 Recreational Development	15
	4.4.12 Residential Development	16

4.4.13	Shoreline Restoration and Natural Systems Enhancement.....	17
4.4.14	Shoreline Stabilization	17
4.4.15	Transportation Facilities	18
4.4.16	Utilities	18
4.5	Shoreline Restoration Plan	19
	Net Effect on Ecological Function	20

5.

List of Figures

Figure 1. Pipe Lake, Lake Lucerne, and Lake Wilderness in Maple Valley, WA. <i>Image source: King County iMap.</i>	3
--	---

List of Tables

Table 1. Key shoreline regulatory programs applicable to the City.	5
Table 2. Environment designation criteria.	9

Introduction

1.1 Background & Purpose

1. This Cumulative Impacts Analysis (CIA) is a required element of the City of Maple Valley (City or Maple Valley) Shoreline Master Program (SMP) update.

The State Master Program Approval/Amendment Procedures and Master Program Guidelines (SMP Guidelines) 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” (WAC 173-26-186[8][d]).

The SMP Guidelines do not include a definition of cumulative impacts; however, federal guidance has defined a cumulative impact as:

The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency... or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (Council on Environmental Quality 1997).

The purpose of this CIA is to evaluate whether the City’s SMP would address adverse environmental impacts such that no net loss of ecological functions would result over a 20-year planning horizon. The baseline against which changes in ecological function are evaluated is the current shoreline conditions, as documented in the Maple Valley Shoreline Characterization Report. Per the SMP Guidelines, individual projects or activities that result in degradation of ecological functions must provide mitigation to return the resultant ecological function back to the baseline.

1.2 Approach

The SMP Guidelines (WAC 173-26-186[8][d]) state that the evaluation of cumulative impacts should consider:

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

Consistent with this guidance, Section 2 of this CIA summarizes existing conditions in the City’s shoreline jurisdiction. Section 3 summarizes regulatory programs that may influence development activity in the City’s shoreline jurisdiction. Section 4 analyzes the effects of

application of the SMP on shoreline ecological functions given anticipated future development. Finally, Section 5 recaps the information in previous sections and features concluding remarks.

Summary of Existing Conditions

The following summary of existing conditions in the City's shoreline jurisdiction is based on the Maple Valley Shoreline Characterization Report.

2. Lake Wilderness, Lake Lucerne, and Pipe Lake are the only waterbodies in the City that qualify as Shorelines of the State. For purposes of the Shoreline Characterization Report, the City's shoreline jurisdiction was broken down into two segments. Lake Lucerne and Pipe Lake are hydrologically connected via a short canal, and are often discussed together in the report. All three lakes are shown below in Figure 1.



Figure 1. Pipe Lake, Lake Lucerne, and Lake Wilderness in Maple Valley, WA. Image source: King County iMap.

All three lakes in Maple Valley's shoreline jurisdiction are primarily developed with single-family residences, though there are portions with recreational land uses. Most notably, Lake Wilderness Park is located on the northwestern shore of Lake Wilderness, and a narrow, forested riparian area is largely intact along the northeastern shore of Lake Wilderness.

Lake Wilderness is the largest lake in Maple Valley at 67 acres, and has a greater variety of shoreline uses and conditions than Pipe Lake and Lake Lucerne. The southern portion of Lake Wilderness is entirely built out with single family residences and associated developments, including bulkheads and docks associated with nearly every residence. Large portions of the shoreline are less intensely developed. This includes the 108-acre Lake Wilderness Park, on the northwestern shoreline, which is heavily used and features a lodge, swimming beach, boat launch, dock, tennis courts, and a ball field. The park lacks the shoreline armoring characteristic of shoreline residential uses and has a much lower density of impervious surfaces and overwater structures. The eastern shore of Lake Wilderness includes a narrow band of forested riparian area where the Cedar to Green River Trail system runs along the lake. This area contains relatively abundant woody debris along the shoreline, which is virtually absent elsewhere in Maple Valley's shoreline jurisdiction.

The shorelines of Pipe Lake and Lake Lucerne are comprised almost entirely of residential uses, the primary exception being the Cherokee Bay Community Club's private park. As a result of the predominantly residential land use, related and accessory developments are also ubiquitous throughout shoreline jurisdiction. Several local access roads run through shoreline jurisdiction, and the majority of the shoreline is bulkheaded. Nearly every shoreline residence includes a dock.

All three lakes have undergone substantial efforts to eradicate invasive aquatic vegetation, which has impacted the prevalence and species richness of both the submergent and emergent plant communities along the lakeshore.

Please see Maple Valley's Shoreline Characterization Report for more information on existing conditions in the City's shoreline jurisdiction.

Summary of Regulatory Programs

A variety of established local, state, and federal regulatory programs may influence development activity in the City’s shoreline jurisdiction. The current shoreline regulatory framework was discussed in the Shoreline Characterization Report. Key regulatory programs

3. identified in the Shoreline Characterization Report are listed in Table 1 below.

Table 1. Key shoreline regulatory programs applicable to the City.

Local	Current SMP (King County)
	Critical Areas Regulations
State	Shoreline Management Act
	Hydraulic Code
	Clean Water Act – Section 401
	State Environmental Policy Act
	Growth Management Act
Federal	Clean Water Act
	Endangered Species Act

Established regulatory programs can play an important role in the design and implementation of a shoreline project, ensuring that impacts to shoreline functions and values are avoided, minimized, and/or mitigated. Please see below for more discussion on the current regulatory framework for development activities along the shoreline.

3.1 City Regulations

All development activity within the City is required to comply with the Maple Valley Municipal Code (MVMC). Provisions in the MVMC that potentially affect how future development is implemented and the extent of potential ecological impacts include critical area regulations and zoning regulations. The following are descriptions of these relevant regulations and how they help to maintain shoreline functions.

3.1.1 Critical Area Regulations

City critical area regulations, which will continue to apply outside of shoreline jurisdiction after adoption of the SMP are detailed in Maple Valley Municipal Code (MVMC) Chapter 18.60. These regulations have a recommended 25-foot minimum streamside buffer width for waterways within the City (MVMC 18.60.310). Wetland buffers between 50 and 150 feet are required based on wetland classification (per the 2004 Washington State Wetland Rating System for Western Washington; MVMC 18.60.260). The City’s Critical Areas regulations also apply to

erosion, landslide, seismic, and steep slope hazard areas, critical aquifer recharge areas, and wildlife habitat conservation areas.

3.1.2 Zoning Code

City zoning standards direct the location of uses, building bulk, and scale. These standards are important in planning for future growth and focusing development in a sustainable manner. Zoning designations in shoreline jurisdiction throughout the City of Maple Valley include Low Density Residential and Parks, Recreation, and Open Space. Each zone has different permitted uses which help to concentrate development in areas appropriate and suitable for similar uses.

3.2 State Agencies/Regulations

Aside from the Shoreline Management Act, State regulations most pertinent to moderation of ecological impacts of development in the City's shoreline include the State Hydraulic Code, the Growth Management Act, State Environmental Policy Act (SEPA), tribal agreements and case law, and Water Resources Act. A variety of agencies (e.g., Washington Department of Ecology, Washington Department of Fish and Wildlife, Washington Department of Natural Resources) are involved in implementing these regulations or managing state-owned lands. The Department of Ecology reviews all shoreline projects that require a shoreline permit, but has specific regulatory authority over Shoreline Conditional Use Permits and Shoreline Variances. Other agency reviews of shoreline developments are typically triggered by in- or over-water work, discharges of fill or pollutants into the water, or substantial land clearing. During the comprehensive SMP update, the City has considered other State regulations to ensure consistency as appropriate and feasible with the goal of streamlining the shoreline permitting process. A summary of some of the key State regulations by agency responsibilities follows.

3.2.1 Washington Department of Ecology

The Washington Department of Ecology may review and condition a variety of project types, including any project that needs a permit from the U.S. Army Corps of Engineers (see below), any project that requires a Shoreline Conditional Use Permit or Shoreline Variance, and any project that disturbs more than 1 acre of land. Project types that may trigger Ecology involvement include pier and shoreline modification proposals and wetland or stream modification proposals, among others. Ecology may comment on local SEPA review if it is an agency of jurisdiction.

3.2.2 Washington Department of Fish and Wildlife

The Washington Department of Fish and Wildlife (WDFW) has the authority to review, condition, and approve or deny "any construction activity that will use, divert, obstruct, or change the bed or flow of State waters." Practically speaking, these activities include, but are not limited to, installation or modification of piers, shoreline stabilization measures, culverts,

and bridges. WDFW typically conditions such projects to avoid, minimize, and/or mitigate for damage to fish and other aquatic life, and their habitats.

3.3 Federal Agencies/Regulations

Federal review of shoreline development is in most cases triggered by in- or over-water work, or discharges of fill or pollutants into the water. Depending on the nature of the proposed development, federal regulations can play an important role in the design and implementation of a shoreline project, ensuring that impacts to shoreline functions and values are avoided, minimized, and/or mitigated.

3.3.1 Clean Water Act

Major components of the Clean Water Act include Section 404, Section 401, 303(d) and the National Pollutant Discharge Elimination System (NPDES).

Section 404 provides the Corps, under the oversight of the U.S. Environmental Protection Agency, with authority to regulate “discharge of dredged or fill material into waters of the United States, including wetlands.” The extent of the Corps’ authority and the definition of fill have been the subject of considerable legal activity. As applicable to the City’s shoreline jurisdiction, however, it generally means that the Corps must review and approve many activities in streams, lakes and wetlands. These activities may include wetland fills, stream and wetland restoration, and culvert installation or replacement, among others. The Corps requires projects to avoid, minimize, and compensate for impacts.

Section 401 Water Quality Certification is required for any applicant for a federal permit for any activity that may result in any discharge to waters of the United States. States and tribes may deny, certify, or condition permits or licenses based on the proposed project’s compliance with water quality standards. In Washington State, the Department of Ecology has been delegated the responsibility by the U.S. Environmental Protection Agency for managing implementation of this program.

The NPDES is similar to Section 401, and it applies to ongoing point-source discharge. Permits include limits on what can be discharged, monitoring and reporting requirements, and other provisions designed to protect water quality. Examples of discharges requiring NPDES permits include municipal stormwater discharge, wastewater treatment effluent, or discharge related to industrial activities or aquaculture facilities.

Section 303(d) of the Clean Water Act requires the state to develop a list of waters that do not meet water quality standards. A Total Maximum Daily Load, or TMDL, must be developed for impaired waters.

3.3.2 Endangered Species Act

Section 9 of the Endangered Species Act prohibits “take” of federally listed species and this prohibition applies to all parties anywhere that those listed species may be found, both in and outside of shoreline jurisdiction. Per Section 7 of the ESA, the Corps must consult with the National Marine Fisheries Service and the U.S. Fish and Wildlife Service on any projects that fall within Corps jurisdiction (e.g., Section 404 or Section 10 permits) that could affect species listed under the Federal Endangered Species Act. These agencies ensure that the project includes impact minimization and compensation measures for protection of listed species and their habitats.

Application of the SMP

4. This section analyzes the effects of application of the SMP on shoreline ecological functions given anticipated future development. As discussed in Section 2, development in shoreline jurisdiction is primarily single-family residential, with some public parks and open spaces along the shoreline. More intensive development is unlikely to occur in the City’s shoreline jurisdiction given the current zoning and comprehensive plan designations of shoreline parcels.

For any development that may occur, the following components of the SMP are integral to ensuring no net loss of shoreline functions. Each of these components is discussed in further detail later in this section.

- **Environment designations:** Shoreline environment designations are based on existing shoreline conditions. Allowed uses focus higher-intensity development in areas with a high level of existing alterations, while limiting future uses in areas where ecological functions and processes are more intact.
- **Shoreline critical areas regulations:** Shoreline critical area regulations are intended to protect shoreline critical areas in accordance with most current, accurate, and complete scientific and technical information available. Regulations include buffers for Shorelines of the State.
- **Mitigation sequencing:** SMP standards require applicants to avoid, minimize, and then compensate for unavoidable impacts to shoreline functions. Where SMP standards do not provide specific, objective measures that clarify avoidance, minimization, and mitigation measures, a mitigation sequencing analysis is required.
- **Shoreline use and modification regulations:** Specific regulations for shoreline uses and modifications ensure that potential impacts are regulated to avoid a net loss of ecological function.

4.1 Environment Designations

The assignment of environment designations can help minimize cumulative impacts by concentrating development activity in lower functioning areas or areas with more intensive existing development that are not likely to experience significant degradation of function with incremental increases in new development or redevelopment.

According to the SMP Guidelines (WAC 173-26-211[2][a]), the assignment of environment designations must be based on the existing use pattern, the biological and physical character of the shoreline, and the goals and aspirations of the community as expressed through a comprehensive plan. The Shoreline Characterization Report reviewed such information and informed the development of environment designations.

The SMP features three upland environment designations: Shoreline Residential, Urban Conservancy, and Natural. All areas waterward of the ordinary high water mark are designated Aquatic. Designation criteria for each environment designation are provided in Table 2.

Table 2. Environment designation criteria.

Environment Designation	Designation Criteria
Shoreline Residential	Those shorelines with predominantly residential uses.
Urban Conservancy	<p>An Urban Conservancy environment designation will be assigned to shorelands appropriate and planned for development that is compatible with maintaining or restoring of ecological functions of the area and that are generally suitable for water-dependent uses and that lie in incorporated municipalities, urban growth areas, or commercial or industrial “rural areas of more intense development” with any of the following characteristics:</p> <ol style="list-style-type: none"> 1. They are suitable for water-related or water-enjoyment uses. 2. They have potential for ecological restoration. 3. They retain important ecological functions, even though partially developed. 4. They have the potential for development that incorporates ecological restoration.
Natural	<p>A Natural environment designation will be assigned to shorelands with any of the following characteristics:</p> <ol style="list-style-type: none"> 1. The shoreland is ecologically intact and therefore currently performing an important, irreplaceable

	<p>function or ecosystem-wide process that would be damaged by human activity.</p> <ol style="list-style-type: none"> 2. The shoreland is considered to represent ecosystems and geologic types that are of particular scientific and educational interest. 3. The shoreland is unable to support new development or uses without significant ecological impacts to ecological functions or risk to human safety. 4. The shoreland is especially sensitive to human disturbance and important for the conservation and recovery of priority species. 5. The shoreland is relatively far from human development and provides food or habitat for a priority, threatened, or endangered species. 6. The shoreland has unique recreational and scenic value that would be degraded by human development. 7. The shoreland has a high value for wilderness experience.
Aquatic	An Aquatic environment designation is assigned to lands waterward of the ordinary high water mark.

4.2 Shoreline Critical Areas Regulations

The SMP, in Appendix A, includes numerous regulations to address potential impacts to shoreline critical areas, including wetlands, fish and wildlife habitat conservation areas, aquifer recharge areas, and geologically hazardous areas. Shoreline critical areas regulations are intended to protect shoreline critical areas in accordance with most current, accurate, and complete scientific and technical information available. Key regulations for wetlands and streams that should help ensure no net loss of ecological function include standard buffer areas, which are discussed in greater detail below.

4.2.1 Wetlands

The SMP requires vegetated buffers for all shoreline wetlands. The standard wetland buffer widths are based on wetland category and habitat score, consistent with Ecology's 2018 guidance (Appendix A, Section 18.60.260). Buffer averaging is permitted when certain criteria are met, including that the total area contained within the buffer after averaging is no less than that contained within the standard buffer prior to averaging, and that such averaging will clearly provide greater protection of the functions and values of critical areas than would be provided by the prescribed habitat buffers (Appendix A, Section 18.60.260(E)).

4.2.2 Streams

Non-shoreline streams occurring in shoreline jurisdiction are regulated by the Shoreline Critical Areas Regulations in Appendix A of the SMP, with buffers required to protect stream function.

For non-shoreline tributaries within shoreline jurisdiction, required buffers range from 50 to 100 feet, depending on the type of stream (Appendix A, Section 18.60.310(B)). Buffers on non-shoreline streams within shoreline jurisdiction help ensure that riparian functions are maintained at ecologically significant confluence areas.

4.3 Mitigation Sequencing

The mitigation sequence is a series of measures that can be applied to projects to ensure they achieve no net loss of ecological functions. In short, these measures are to avoid, minimize, and then compensate for unavoidable impacts to shoreline functions (the full sequence is listed in the SMP Section 4.4.3[4]). Mitigation sequencing applies to all projects in shoreline jurisdiction.

For some development activities, provisions in the SMP stipulate specific, objective standards for avoiding impacts (e.g. placement), minimizing impacts (e.g. size), and compensating for unavoidable impacts (e.g. planting requirements). If a proposed shoreline use or development is entirely addressed by such standards, then further mitigation sequencing analysis is not required.

However, in the following situations, applicants must provide an analysis of how the project will follow the mitigation sequence:

- If a proposed shoreline use or modification is addressed in any part by discretionary standards (such as standards requiring a particular action “if feasible” or requiring the minimization of development size) contained in the City’s shoreline regulations, then the mitigation sequence analysis is required for the discretionary standard(s).
- When an action requires a shoreline conditional use permit or shoreline variance permit.
- When specifically required by a provision in the City’s SMP.

The application of mitigation sequencing standards will help ensure that shoreline uses and modifications achieve no net loss of shoreline ecological functions.

4.4 Shoreline Use & Modification Regulations

As discussed previously, WAC 173-26-186(8)(d) directs local SMPs to evaluate and consider the cumulative impacts of “reasonably foreseeable future development and use of the shoreline.” Although future development may include other less common types of development, the location, timing, and impacts of less common uses and development projects are less predictable. WAC 173-26-201(3)(d)(iii) states:

For development projects and uses that may have unanticipatable or uncommon impacts that cannot be reasonably identified at the time of master program development, the master program policies and regulations should use the permitting or conditional use permitting processes to ensure that all impacts are addressed and that there is no net loss of ecological function of the shoreline after mitigation.

The below subsections address the extent to which future changes to shoreline land uses and modifications are anticipated, and describe how the SMP would apply to each of these changes to help maintain no net loss of functions.

The majority of activities within shoreline jurisdiction will likely fall under repair and maintenance. However, while repair and maintenance activities are exempt from shoreline substantial development permit requirements, SMP standards still apply.

4.4.1 Agriculture

Likelihood of Development

No agricultural land uses currently exist, or are expected, in Maple Valley's shoreline jurisdiction.

Application of SMP

The SMP prohibits agricultural land uses in shoreline jurisdiction (Section 3.6, Shoreline Uses and Shoreline Modifications for Each Designation).

4.4.2 Aquaculture

Likelihood of Development

No aquaculture currently exists, or is expected, in Maple Valley's shoreline jurisdiction.

Application of SMP

The SMP prohibits aquaculture in shoreline jurisdiction (Section 3.6, Shoreline Uses and Shoreline Modifications for Each Designation).

4.4.3 Boating Facilities

Likelihood of Development

The only existing boating facilities in Maple Valley's shoreline jurisdiction are a dock and boat launch at Lake Wilderness Park. The vast majority of shoreline jurisdiction is currently developed in residential land use, leaving very few remaining opportunities for the development of boating facilities.

Application of SMP

Boating facilities are typically associated with more intensive shoreline recreation, alterations to the shoreline gradient, and increased overwater coverage.

Boating facilities are prohibited uses in all shoreline environment designations except for urban conservancy. Within the urban conservancy environment, new boating facilities are prohibited (Regulation 5.1.3[1]). Maintenance and alteration of existing boating facilities is allowed pursuant to the policies and regulations of Section 5.1, and must be located, designed, and constructed in a manner that assures no net loss of ecological functions (Policy 5.1.2[3], Regulation 5.1.3[4]).

4.4.4 Commercial Development

Likelihood of Development

No commercial land uses currently exist, or are expected, in Maple Valley's shoreline jurisdiction.

Application of SMP

The SMP prohibits commercial land uses in shoreline jurisdiction (Section 3.6, Shoreline Uses and Shoreline Modifications for Each Designation).

4.4.5 Docks, Piers and Floats

Likelihood of Development

Nearly every residential lot along Maple Valley's shorelines has a dock. Lake Wilderness Park, the Cherokee Bay Community Club, and the Cedar Downs private access park all include docks, as well. While there are limited opportunities for the development of new docks, piers, and floats, it is expected that both new development and the maintenance, repair, replacement, and expansion of existing structures is likely to occur with regularity.

Application of SMP

The development of docks, piers, and floats can impact the shoreline by altering circulation patterns, impacting light regimes and aquatic vegetation growth, and impacting habitat access and conditions in the nearshore.

The development of new docks, piers, and floats is only allowed on existing residential lots if the applicant can demonstrate that options for a community or joint-use dock are infeasible (Regulation 6.4.4[10]). In the event of new residential development of two or more waterfront units, or subdivisions occurring after the SMP is adopted, only joint-use or community docks, piers, and floats are allowed (Regulation 6.4.4[9]). Residential docks and piers are limited to one per single-family lot (Regulation 6.4.4[8]), and are subject to limitations on length, width, location, and overwater coverage (Regulation 6.4.4[11]). Only approved materials are allowed in

the construction or maintenance of overwater structures (Regulation 6.4.4[4]) and pile spacing must be the maximum possible to reduce impacts to lighting and the movement of water or aquatic life forms (Regulation 6.4.4[6]).

4.4.6 Dredging and Dredge Material Disposal

Likelihood of Development

Dredging and dredge material disposal is not known to occur regularly.

Application of SMP

Dredging activities have potential short-term and long-term effects on the aquatic environment. Short-term effects include elevated turbidity and direct habitat disturbance. Long-term effects stem from the alteration of currents and sediment transport processes, both to on-site and downstream areas.

Dredging may only be authorized for a limited number of purposes, including for essential public facilities and utilities, only when necessary and no feasible alternative exists, and for shoreline restoration projects (Regulation 6.6.3[3]). New shoreline development must be designed to avoid the need for new and maintenance dredging (Regulation 6.6.3[1]). Any dredging and dredge material disposal must be done in a manner that avoids, minimizes, and mitigates impacts to ensure no net loss of shoreline ecological functions (Regulation 6.6.3[2]). Additionally, dredging and dredge material disposal may only be permitted if shoreline ecological conditions will be preserved, restored, or enhanced, and erosion, sedimentation, and runoff will not increase adverse impacts to shoreline ecological functions (Regulation 6.6.3[6]).

4.4.7 Fill and Excavation

Likelihood of Development

Fill and excavation would most likely occur over relatively small areas of shoreline jurisdiction in support of approved developments.

Application of SMP

Fill can result in a change in habitat conditions and temporary effects to water quality. In some cases, these actions can be used to restore habitats that have been degraded as a result of altered watershed processes or past practices.

Fills and excavations may only be permitted when associated with an approved use and must generally be located outside of applicable buffers (Regulation 6.7.3[8]). Fill waterward of the ordinary high water mark shall only be permitted as a conditional use under a narrow set of circumstances (Regulation 6.7.3[9]). Fill and excavation must be the minimum extent necessary to implement the allowed development (Regulation 6.7.3[1]) and must not adversely affect movement, sedimentation, and erosion from the affected area. (Regulation 6.7.3[4]). Proposals

for fill and excavation must demonstrate that there will be no net loss of shoreline ecological functions (Regulation 6.7.3[6]). All shoreline development must comply with applicable stormwater regulations, requirements, and best management practices identified in the most recent stormwater manual (Regulation 6.7.3[2]).

4.4.8 Forestry

Likelihood of Development

Forest practices do not currently occur and are not expected to occur in shoreline jurisdiction.

Application of SMP

Forest practices are prohibited in shoreline jurisdiction (Section 3.6, Shoreline Uses and Shoreline Modifications for Each Designation).

4.4.9 Industrial Development

Likelihood of Development

Industrial development does not currently occur and is not expected to occur in shoreline jurisdiction.

Application of SMP

Industrial development is prohibited in shoreline jurisdiction (Section 3.6, Shoreline Uses and Shoreline Modifications for Each Designation).

4.4.10 Mining

Likelihood of Development

Mining does not currently occur and is not expected to occur in shoreline jurisdiction.

Application of SMP

Mining is prohibited in shoreline jurisdiction (Section 3.6, Shoreline Uses and Shoreline Modifications for Each Designation).

4.4.11 Recreational Development

Likelihood of Development

The northwestern shore of Lake Wilderness includes Lake Wilderness Park, which is the primary hub of public access and shoreline recreation in Maple Valley. The 108-acre park includes a lodge, tennis courts, a ball field, a swimming beach, a dock, and a boat launch. King County owns a parcel on the northeastern shore of Lake Wilderness for the Cedar River Trail System. The shorelines of Lake Lucerne and Pipe Lake are primarily developed with single family residences, but also include two private parks for the Cedar Downs and Cherokee Bay

communities. The Cherokee Bay Community Club includes two clubhouses, a swimming beach, tennis and basketball courts, a dock, and a boat launch. It is possible that additional recreational development, such as trail extensions, could be proposed in these areas.

Application of SMP

Recreational development can result in increased impervious surfaces, increased use of pesticides and fertilizers, and increased potential for riparian degradation.

Areas with existing recreational development have been assigned the Urban Conservancy environment designation. New recreational development may be permitted in this designation, as well as in the Shoreline Residential environment designation. Recreational developments must be located, designed, and operated to be consistent with the purpose of the environment designation in which they are located and ensure that there is no net loss of shoreline ecological functions or ecosystem-wide processes (Policy 5.2.2[4]). Except for accessory or water-dependent structures, new recreational development is allowed in shoreline buffers only upon approval of a shoreline variance (Regulation 5.2.3[3]), provided that the applicant can demonstrate that the design applies mitigation sequencing and appropriate mitigation is provided to ensure no net loss of ecological functions (Regulation 5.2.3[4]).

Recreational developments that support high-intensity activities, or require the use of fertilizers and pesticides are not allowed within shoreline jurisdiction whenever feasible (Regulation 5.2.3[10]). Substantial accessory use facilities, such as restrooms, recreation halls, and parking areas, are also required to be located outside of shoreline jurisdiction unless it is determined that they are water-dependent uses or necessary to support a water-dependent use (Regulation 5.2.3[11]). Only non-intensive recreation activities are allowed in fragile and unique shoreline areas (Regulation 5.2.3[9]).

4.4.12 Residential Development

Likelihood of Development

Residential development is currently the predominant land use in shoreline jurisdiction. Opportunities for new residential development are limited, as only eight vacant lots in shoreline jurisdiction remain within areas zoned residential. However, replacement and expansion of existing residential development is likely to occur.

Application of SMP

Residential development is typically associated with an increase in impervious surfaces, the potential for water quality contamination, and the disturbance of riparian corridors.

New residential lots created through land division must assure that no net loss of ecological functions will result from the subdivision at full build-out, and that the need for new shoreline stabilization measures is prevented (Regulation 5.3.3[3]). Similarly, new residential

development must be located to avoid the need for shoreline stabilization, and must be located, designed, and constructed in a manner that assures no net loss of shoreline ecological functions (Policies 5.3.2[1] and [2], Regulation 5.3.3[5]). New residential development is subject to limitations on the amount of total building footprint area and the amount of impervious surface on each lot (Regulation 5.3.3[1]). Accessory structures allowed within 65 feet of the OHWM are limited in size and scope (Regulation 5.3.3[2]). Residential development would also need to comply with the shoreline buffer provisions specified in Section 3.7, Shoreline Development Standards. Proposals for residential development require mitigation sequencing in order to demonstrate that the project will result in no net loss of shoreline ecological functions (Regulation 5.3.3[5]).

4.4.13 Shoreline Restoration and Natural Systems Enhancement

Likelihood of Development

Several restoration opportunities are identified in the Shoreline Restoration Plan. Many of these opportunities originated in watershed-scale planning documents.

Application of SMP

Policy 6.5.2[4] identifies the intent to foster shoreline habitat and natural systems enhancement projects consistent with the Shoreline Restoration Plan. Shoreline habitat and natural systems enhancement projects may be permitted provided that the applicant demonstrates that the project's purpose is establishing, restoring, or enhancing habitat, the project is consistent with the Shoreline Restoration Plan or is otherwise consistent with the SMP (Regulation 6.5.3[4]), will not adversely affect ecological processes (Regulation 6.5.3[1]), and will not significantly interfere with the normal public use of navigable waters (Regulation 6.5.3[3]). Shoreline restoration projects must also be designed using the best available scientific and technical information, and implemented using best management practices (Regulation 6.5.3[2]).

4.4.14 Shoreline Stabilization

Likelihood of Development

Some armoring is present in shoreline jurisdiction. New shoreline stabilization is not anticipated to commonly occur, but could be proposed, particularly in association with transportation or utility infrastructure.

Application of SMP

Shoreline stabilization measures tend to result in the simplification of shoreline habitat complexity.

The occurrence of new stabilization measures will be limited as new development must be located and designed to avoid the need for future shoreline stabilization, if feasible (Regulation 6.3.3[1]), and new or enlarged stabilization is only allowed under certain circumstances

(Regulation 6.3.4[1]). Soft approaches must be used unless demonstrated not to be feasible (Regulation 6.3.4[3]). All proposals for shoreline stabilization structures must incorporate mitigation sequencing to ensure that the proposal will not result in a net loss of ecological functions (Regulation 6.3.4[7]), and must be the minimum size necessary (Regulation 6.3.4[6]). Areas of temporary disturbance within the shoreline buffer shall be expeditiously restored to their pre-project condition or better (Regulation 6.3.4[8]).

An existing shoreline stabilization structure, hard or soft, may be repaired, maintained, or replaced with a similar structure if there is a demonstrated need to protect principal uses or structures from erosion caused by currents or waves (Regulation 6.3.5[2]). However, additions to or increases in size of more than 10 percent of any dimension of existing shoreline stabilization measures shall be considered new structures (Regulation 6.3.5[1]).

4.4.15 Transportation Facilities

Likelihood of Development

Shoreline jurisdiction in Maple Valley is primarily developed with single family residences. As such, many local access roads are also in shoreline jurisdiction, in addition to parking lots for Lake Wilderness Park and the Cherokee Bay Community Club. The Cedar to Green River Trail passes through shoreline jurisdiction on the eastern shore of Lake Wilderness. There is potential for new transportation facilities, including roads, to be constructed; however, the replacement, repair, and maintenance of existing transportation infrastructure are expected to be more common.

Application of SMP

New transportation and parking facilities are associated with increased stormwater discharge, increased shoreline crossing structures, and riparian disturbance.

The SMP limits development of new transportation facilities or parking areas in shoreline jurisdiction unless they are related to and necessary to support permitted shoreline activities (Regulations 5.4.3[1] and 5.4.5[1]). When new transportation and parking facilities are unavoidable in shoreline jurisdiction they must be planned, located, and designed to minimize possible adverse effects on unique or fragile shoreline and result in no net loss of shoreline ecological functions (Regulations 5.4.3[2] and 5.4.3[3]).

4.4.16 Utilities

Likelihood of Development

Limited new utility development, including the expansion of existing utilities, is expected. Moreover, regular maintenance and repair of utilities is expected to occur.

Application of SMP

Utilities have the potential to disrupt shoreline functions through associated shoreline armoring; introduce the potential for spills or leakage; and can decrease or disturb riparian vegetation.

Under the proposed SMP, major utilities must be located outside of shoreline jurisdiction, where feasible (Policy 5.5.2[2], Regulation 5.5.3[1]). In order to limit the spatial extent of any impacts from new utilities, they must be located in existing right-of-ways and corridors whenever possible (Regulations 5.5.3[5] and 5.3.4[2]). Utility projects allowed within shoreline jurisdiction shall be designed to achieve no net loss of shoreline ecological function, including the utilization of mitigation sequencing as necessary (Regulations 5.5.3[3] and 5.3.4[3]), and the requirement that any areas disturbed during construction or maintenance must be kept to minimum amount necessary and shall be restored to their pre-project condition or better (Regulations 5.5.3[13] and 5.5.4[6]).

4.5 Shoreline Restoration Plan

One of the key objectives that the SMP must address is “no net loss of ecological functions necessary to sustain shoreline natural resources” (WAC 173-26-201[2][c]). Although the implementation of restoration actions to restore historic functions is not required by SMP provisions, the SMP 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]).

The Shoreline Restoration Plan represents a long-term vision for restoration that will be implemented over time, resulting in a gradual improvement over the existing conditions. Although the SMP is intended to achieve no net loss of ecological functions through regulatory standards alone, practically, an incremental loss of shoreline functions at a cumulative level may occur through minor, exempt development; illegal development; failed mitigation efforts; or a temporal lag between the loss of existing functions and the realization of mitigated functions. The Shoreline Restoration Plan, and the voluntary actions described therein, can be an important component in making up that difference in ecological function.

Net Effect on Ecological Function

This CIA indicates that future development in shoreline jurisdiction is likely to primarily consist of maintenance and redevelopment of existing structures and uses. Opportunities for new development are limited within shoreline jurisdiction in Maple Valley.

5. The SMP is expected to maintain existing shoreline functions while accommodating the reasonably foreseeable future shoreline development. As discussed above, major elements of the SMP that ensure no net loss of ecological functions fall into four general categories: 1) shoreline environment designations, which are based on existing shoreline conditions; 2) shoreline critical areas regulations, which are intended to protect shoreline critical areas in accordance with most current, accurate, and complete scientific and technical information available; 3) mitigation sequencing, which directs applicants to avoid, minimize, and then compensate for unavoidable impacts to shoreline functions; and 4) shoreline use and modification provisions, which ensure that likely development is regulated to avoid a net loss of ecological function.

Other local, state and federal regulations, acting in concert with this SMP, will provide further assurances of maintaining shoreline ecological functions over time.

As part of a comprehensive SMP update, local jurisdictions are required to plan for the restoration of impaired shoreline functions. Such planning “should be designed to achieve overall improvements in shoreline ecological function over time, when compared to the status upon adoption of the master program” (WAC 173-26-201[2][f]). The Shoreline Restoration Plan represents an opportunity for voluntary restoration to be implemented over time and result in ongoing improvements to shoreline ecological functions within the City.

In summary, given the provisions of the SMP, including the key features listed above, implementation of the proposed SMP is anticipated to achieve no net loss of ecological functions in the shoreline in the City of Maple Valley. Furthermore, voluntary restoration actions in the forthcoming Shoreline Restoration Plan would provide the opportunity for Maple Valley’s shorelines to be enhanced and restored in coming years.