

FINAL

CITY OF ANACORTES
GRANT No. G1000072

CUMULATIVE IMPACTS ANALYSIS

**for City of Anacortes Shorelines: Puget Sound Waters,
Cranberry Lake, Heart Lake, Whistle Lake and Lake Erie**

Prepared for:



City of Anacortes
Planning Department
PO Box 547
Anacortes, WA 98221

Prepared by:



750 Sixth Street South
Kirkland . WA 98033

p 425.822.5242
f 425.827.8136
watershedco.com

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Dan Nickel

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CUMULATIVE IMPACTS ANALYSIS

CITY OF ANACORTES SHORELINES: PUGET SOUND WATERS,
CRANBERRY LAKE, HEART LAKE, WHISTLE LAKE AND LAKE ERIE

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.”

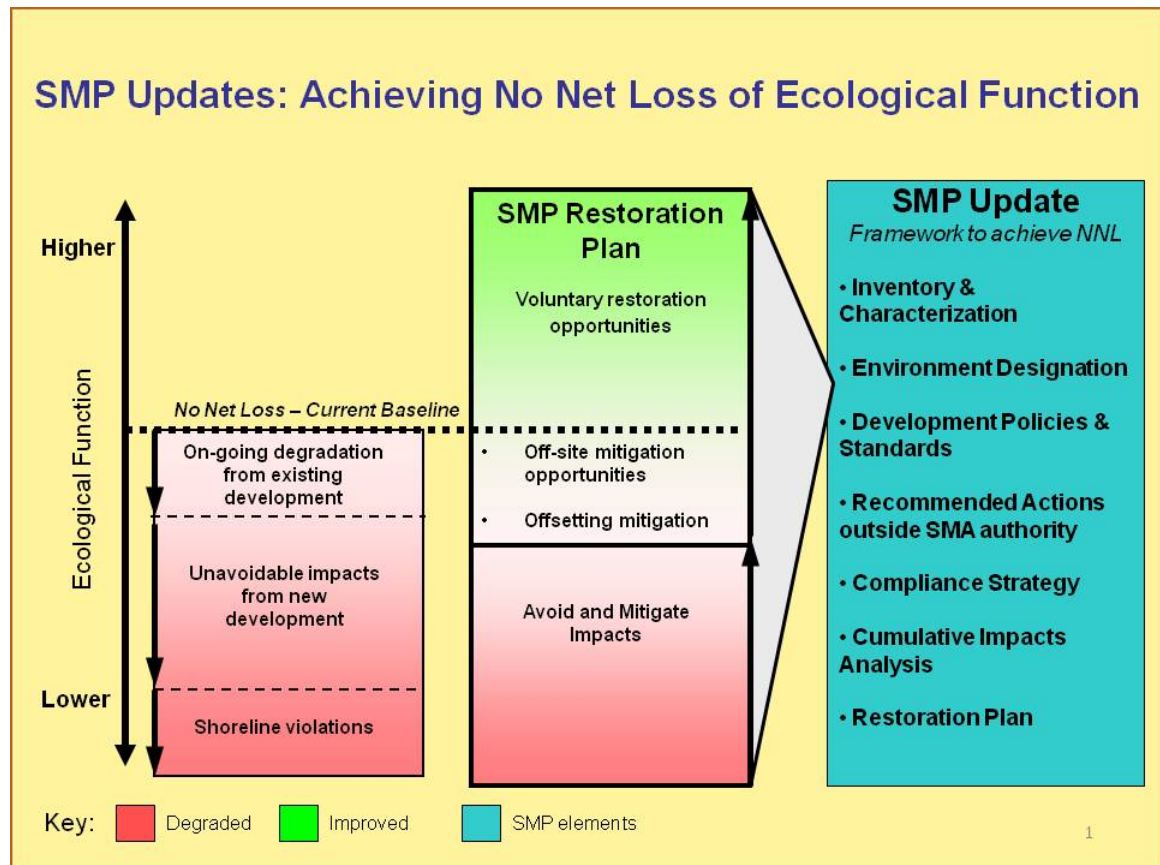
The Guidelines further elaborate on the concept of net loss as follows:

“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 *Final 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 *Final Shoreline Analysis Report*. This discussion has been divided by waterbody and by proposed shoreline environment designations (see Figure 5.1 of the SMP for a map of environment designations). Environment designations include Natural, Conservancy, Shoreline Residential, Urban, Urban Maritime, and Aquatic. The *Final 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 Puget Sound Waters

The Puget Sound shoreline in the City of Anacortes has a variety of uses, including parks, trails and open spaces (typically designated Conservancy or Natural); large scale industrial or marine services such as manufacturing, boat repair, port operations, marinas, and office buildings (typically designated Urban or Urban Maritime), and residential areas consisting of single- and multi-family housing (typically designated Shoreline Residential or Urban). In addition, there are a number of wetlands associated with the Puget Sound shoreline, generally consisting of either historic or existing estuaries. Two large wetlands (Lake Shannon [formerly known as Cannery Pond] and Ship Harbor) are both designated Natural.

The City's marine shoreline has been divided into 24 reaches based on variations in land use and shore topography. Land use conditions in each reach can be found in Tables 12 through 14 in the *Final Shoreline Analysis Report*. The performance of functions in these shoreline reaches is extremely variable, relating primarily to the presence or absence of

water-dependent uses throughout the corridor. Higher functioning areas in the City, such as Fidalgo Head, Shannon Point, Fidalgo Bay, and Padilla Bay, have more open space, more vegetation, and less development including fewer shoreline modifications. Detailed information about existing functions, including a performance rating of individual reach functions, can be found in the *Final Shoreline Analysis Report*, Section 4.3, as well as on maps found in Appendix D (Figure 13) of that report.

2.2 Freshwater: Whistle, Heart, Cranberry and Erie Lakes

The freshwater lakes in the City of Anacortes include all of Whistle, Heart, and Cranberry Lakes and a small portion of Erie Lake. These lakes are each within the City's Community Forest Lands. Public access to the shoreline includes mostly passive recreation trails, with one public parking area along Heart Lake and a much smaller public parking area along the north shore of Cranberry Lake. Other access points, such as trails, are only accessible by foot. No shoreline armoring exists. Vegetative cover is over 90% in most cases. Impervious surface is up to 10% at Heart Lake due to the proximity of Heart Lake Road within shoreline jurisdiction. Heart Lake also has a large gravel parking area adjacent to shore which lacks vegetation in many areas.

These shoreline areas remain in a fairly natural state with very little alteration and thus shoreline processes remain relatively intact. The collective performance of functions in these shoreline areas is High (see Figure 13 in Appendix D of the *Final Shoreline Analysis Report*) because of their extensive vegetation, low level of shoreline modification, and low level of development. Based on the planned land use and the relatively high function level, these freshwater shorelines are designated as either Conservancy or Natural.

3 DEVELOPMENT POTENTIAL

Each waterbody was grossly divided into units (see Exhibit 1 in the *Final Shoreline Analysis Report*) at a reach or similar scale anticipated to match somewhat closely with the future development of environment designations. For the most part, the unit breaks do correspond closely with a given environment designation, although additional complexity was added during environment designation development to recognize parallel environments, which are common along Guemes Channel where a trail and steep slope parallel development.

3.1 Puget Sound Waters

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

Table 1. Likely changes in land use along Anacortes marine shorelines by reach.

Reaches	Likely Changes in Land Use
<p>Reaches 1, 2, 3, and 8. Single-family development along Burrows Bay (Reaches 1-3) and between Washington Park and Shannon Point (Reach 8)</p>	<p>There is little likelihood of a change in land use because these residential reaches are almost entirely built out and are consistent with the Comprehensive Plan land use designations. Only Reach 3, with over 20% of the 88 waterfront lots currently undeveloped, has a chance to significantly increase development. However, each of those lots is currently cleared of vegetation, graded flat, and armored along the shoreline. All but Reach 2 include access to a single or joint-use pier/dock.</p> <p>Several small lots within Reaches 2 and 8, as well as one large subdivision in Reach 1, are also likely candidates for new construction. Otherwise, changes within these reaches will likely constitute reconstruction.</p>
<p>Reaches 4 and 5 Skyline Marina and multi-family development along Burrows Bay.</p>	<p>There is little likelihood of change in land use within Skyline Marina (Reach 4).</p> <p>Existing properties within Reach 5 along the seaward side of Skyline Marina along Burrows Bay may be developed for multi-family residential. This area is zoned Commercial Marine.</p>
<p>Reach 6 Natural shoreline along south side of Washington Park</p>	<p>There is little likelihood of change in land use within this portion of Washington Park.</p>
<p>Reaches 7 and 9 Includes the north side of Washington Park (Reach 7), day use picnic, parking and boat launch. Reach 9 includes all of Shannon Point.</p>	<p>There is little likelihood of change in land use within this portion of Washington Park (Reach 7), although future modifications to the day use park area and boat launch are possible.</p> <p>There is also little likelihood of change in land use within Shannon Point.</p>
<p>Reach 10 Ship Harbor – location for Washington State Ferry system to San Juan Islands</p>	<p>There is little likelihood of change in land use within this reach. The Washington State Ferries are expected to continue operations indefinitely.</p>
<p>Reach 11 Ship Harbor Wetland</p>	<p>There is little likelihood of change in land use within this reach. The reach is almost entirely comprised of the shoreline-associated wetland. One large lot along the eastern end of this reach is zoned in Commercial Marine and may be developed in the future for multi-family or commercial use. However, it is likely that any proposed development would occur outside of shoreline jurisdiction due to the wetland location. In addition, the City plans to expand the Guemes Channel Trail around the Ship Harbor Wetland, providing further link from Washington Park to the City Center. However, this trail would likely be located outside of the wetland boundary and thus outside of shoreline jurisdiction.</p>

Reaches	Likely Changes in Land Use
<p>Reach 12 Area between Ship Harbor Wetland and Lovric's Marina contains mix of developed and undeveloped parcels</p>	<p>Existing single-family residential development occurs along the eastern portion of this reach and more undeveloped lots are located to the west. Of the existing single-family residential development, most occurs along the upland areas due to steep slope conditions along the waterward side.</p> <p>The western portion is zoned as Commercial Marine and planned for residential and commercial use with up to two large forested lots available. The eastern 21.8-acre lot is planned for subdivision into single-family residential uses.</p> <p>Three forested lots in the R2 zone just east of the CM zone are expected to be developed in the future, with possible subdivision.</p> <p>The City is currently building the Guemes Channel Trail along the shoreline's old railroad bed.</p>
<p>Reach 13 This area comprises the upland and aquatic area of Lovric's Marina</p>	<p>There is little likelihood of change in land use within this reach. The reach is entirely comprised of land owned and operated as Lovric's Marina.</p>
<p>Reach 14 The area between Lovric's Marina and Guemes Island Ferry terminal is primarily residential, but also includes Kiwanis Park to the east and some commercial use along the waterfront (zoned as Light Manufacturing)</p>	<p>Existing single-family residential development occurs throughout the upland portion of this reach. Many undeveloped lots exist, yet only one is deemed buildable due to steep slope conditions. Thus, very little change in land use is expected in the upland areas.</p> <p>The aquatic area is zoned for Light Manufacturing and currently includes one vacant cannery building (possible future development) and one existing commercial marine business.</p> <p>No change in use is expected for Kiwanis Park.</p>
<p>Reach 15 This area includes the City's main manufacturing and shipping industries.</p>	<p>There is little likelihood of change in land use within this reach. Future site improvements are anticipated in some areas to improve environmental conditions, including Dakota Creek Industries, Trident Seafoods, and N Street street-end park.</p>

Reaches	Likely Changes in Land Use
<p>Reach 16 Single-family residential uses occupy the north end of Cap Sante (zoned R2)</p>	<p>Very little change in land use is expected within this reach. Existing single-family residential development occurs along most of this shoreline with only one undeveloped lot available for improvements.</p> <p>Two properties located along the north shoreline in a protected bay have existing pier/dock structures. One new pier/dock structure is currently proposed along the eastern shoreline. The SMP would allow for new piers/docks to be constructed in this reach, with encouragement for joint-use structures. Given the steep rocky landscape along most of Cap Sante, new pier construction is expected to be rare. Although allowed under the prior SMP, only two piers have been constructed in this area. Therefore, future pier/dock development is expected to be limited to approximately four new structures.</p>
<p>Reach 17 Natural shoreline along Cap Sante Park</p>	<p>There is little likelihood of change in land use within this portion of Cap Sante Park.</p>
<p>Reach 18 This area comprises the upland and aquatic area of Cap Sante Boat Haven and Rotary Park to the east.</p>	<p>Future anticipated changes include hazardous material clean-up at the Cap Sante Marina (former boat yard and marina) and construction of a new dry storage and boat launch. Along the shoreline, public access will be improved by a walkway, built into the overall marina.</p> <p>Upland lots not associated with marina activities may redevelop over time. These redevelopments are anticipated to include restaurants, offices, and marine oriented businesses.</p>
<p>Reaches 19 and 20 These reaches extend from Cap Sante Boat Haven to the south end of the former Custom Plywood Mill site and include a variety of water oriented uses.</p>	<p>Reach 19 includes the former Scott Paper Mill property which has been an active cleanup site for the Port of Anacortes. The northern portion of the site is now primarily Seafarers' Memorial Park, and the southern portion is primarily vacant.</p> <p>The south end of Reach 20 includes the former Custom Plywood Mill site, which will be investigated for cleanup under the state's Puget Sound Initiative. The current owner plans to utilize the site for a yacht repair facility when cleanup is complete.</p> <p>Other anticipated changes in land use within this reach include additional water-dependent uses such boat repair, boat storage, and launching facilities which are in-line with current zoning.</p>
<p>Reach 21 This area includes a mix of uses including single-and multi-family residential, as well as public open space associated with the Tommy Thompson Trail.</p>	<p>Future changes in land use are anticipated. These may include redevelopment of existing single-family residences located just south of the former Custom Plywood Mill site and development of multi-family condominiums near the south end. No new overwater pier/dock structures are anticipated for single- or multi-family developments.</p>

Reaches	Likely Changes in Land Use
<p>Reach 22 The Weaverling Spit reach includes the Samish Indian Nation-owned RV Park as well as the public open space associated with the Tommy Thompson Trail.</p>	<p>There is little likelihood of change in land use within this reach.</p>
<p>Reach 23 South end of Fidalgo Bay</p>	<p>The majority of this reach contains either protected or unbuildable lots. However, several small lots along the western shoreline of the Bay are likely candidates for new construction. Otherwise, changes to single-family lots within this reach will likely constitute reconstruction. No new overwater pier/dock structures are anticipated.</p>
<p>Reach 24 Lumber mill site along the southwestern shore of Padilla Bay. Historical site of March Point Landfill (i.e. Whitmarsh Landfill)</p>	<p>Anticipated changes in land use within this reach include potential cleanup activities associated with the historic March Point Landfill and possible redevelopment of the site to Heavy Manufacturing per City zoning.</p>

3.2 Freshwater: Whistle, Heart, Cranberry and Erie Lakes

These freshwater shorelines include the Community Forest Lands associated with Whistle, Heart, Cranberry, and Erie Lakes as well as their associated wetlands. Whistle, Heart and Cranberry Lakes are included in their entirety. For Erie Lake, only the shoreline area within the City boundary (~900 linear feet) is under the City’s SMP jurisdiction.

There is little likelihood of change in land use within shorelines surrounding these freshwater lakes. Use of passive recreation trails, beach access, and some parking (at Heart and Cranberry Lakes) are anticipated to continue.

4 PROTECTIVE SMP PROVISIONS

4.1 Environment Designations

The first line of protection of the City’s shorelines is the environment designation assignments (see Figure 5.1 of the SMP). The Natural environment is the most restrictive, followed by the Conservancy environment. Only water-enjoyment recreational and scientific, cultural, and education facilities are potentially allowed through a Conditional Use process in the Natural environment. Several others are allowed outright in the Conservancy environment (advertising and signs, recreational facilities, and minor utilities), whereas others in the Conservancy environment may be

approved in special circumstances related to providing public access or enabling restoration, or as conditional uses. In some respects, the Shoreline Residential environment is as restrictive as or more restrictive than the Conservancy environment. The most permissive environments are Urban and Urban Maritime, which have been assigned to those areas that are already developed with commercial or industrial uses or prepared (cleared) for development. Most often, the Urban and Urban Maritime environments contain water-dependent uses as a primary use.

Use of parallel environment designations is proposed along several areas of Anacortes residential shorelines which are in need of added protection shoreline function and the separation of various uses. These areas include the small residential area between Washington Park and Shannon Point and the residential area along Guemes Channel, excluding Lovric's Marina.

Table 2 (Table 5.1 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 2. Shoreline Use and Modification Matrix (Table 5.1 in Chapter 5.12 of the Shoreline Master Program)

<p>The chart is coded according to the following legend.</p> <p>P = Permitted, when meeting requirements for that use and shoreline area, may be subject to Shoreline Substantial Development Permit or shoreline exemption requirements</p> <p>C = Conditional Use, when approved by the City and Department of Ecology</p> <p>X = Prohibited; the use is not eligible for a Variance or Conditional Use Permit</p>	Natural	Conservancy	Shoreline Residential	Urban	Urban Maritime	Aquatic
Shoreline Uses						
Advertising and Signs	X	P	P	P	P	P
Agriculture	X	X	X ¹	X ¹	X	X
Aquaculture						
Non-commercial aquaculture for recovery of a native population	C	C	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	Natural	Conservancy	Shoreline Residential	Urban	Urban Maritime	Aquatic
All other aquaculture	X	X	X	C	C	X
Commercial Development						
Water-dependent	X	X	P ³	P	P	C
Water-related	X	X	P ³	P	P	C
Water-enjoyment	X	X	P ³	P	P	C
Non-water-oriented	X	X	P ³	C	C	X
Forest Practices	X	C	X	X	X	X
Industrial and Port Facilities						
Water-dependent	X	X	X	P	P	P
Water-related	X	X	X	P	P	C
Non-water-oriented	X	X	X	C	C	X
Marinas	X	X	X	P	P	P
Mining	X	X	X	X	X	X
Parking Facilities						
Primary	X	X	X	P	P	X
Accessory	X	C	P	P	P	X
Recreational Facilities						
Water-dependent (e.g., public access piers)	X	P	P	P	P	P
Water-related	X	P	P	P	P	P
Water-enjoyment (e.g., pedestrian trails)	C	P	P	P	P	P
Nonwater-oriented	X	X	C	C	C	X
Residential Development						
Single-family	X	C	P	P	X	X
Multi-family	X	X	P	P	X	X
Scientific, Cultural and Educational Facilities	C	P	P	P	P	P
Transportation Facilities						
Water-dependent (e.g., ferry terminal)	X	X	X	P	P	P
Water-related (e.g., ferry loading area)	X	X	X	P	P	P
Roads and associated facilities (e.g., sidewalks, bike lanes, storm drainage, etc.)	X	C	P	P	P	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	Natural	Conservancy	Shoreline Residential	Urban	Urban Maritime	Aquatic
Other non-water-oriented	X	X	X	X	X	X
Utilities (Primary)						
Major	X	C	P	P	P	C
Minor	X	P	P	P	P	C
Shoreline Modifications						
Boat Launches						
Public	X	C	C	P	P	P
Private	X	X	C	P	P	P
Breakwaters ²	X	C	C	C	C	C
Docks, Piers and Floats						
Public	X	C	P	P	P	P
Private	X	X	P ⁴	P	P	P
Dredging and Dredge Spoil Disposal						
Dredging or in-water disposal associated with restoration	P	P	P	P	P	P
Other dredging	X	C	P	P	P	P
Other in-water disposal	X	X	X	X	X	X
Upland disposal	X	C	P	P	P	--
Fill						
In-water or upland restoration	P	P	P	P	P	P
Other in-water fill	X	C	C	C	C	C
Other upland fill	X	C	P	P	P	--
Jetties and Groins	X	X	C ²	C ²	C ²	C ²
Mooring Buoys	X	C	P	P	P	P
Shoreline Habitat and Natural Systems Enhancement Projects	P	P	P	P	P	P
Shoreline Stabilization						
Bioengineering or other soft structural stabilization technique	P	P	P	P	P	P
Hard structural stabilization	X	C	C	P	P	P

¹ Home gardens associated with a single-family residence are allowed in the Shoreline Residential and Urban environment.

² Those structures installed to protect or restore ecological functions may be processed as a Substantial Development Permit.

³ Except for marinas, only commercial uses that are incidental to the primary residential use and are compatible with the residential character of the neighborhood, such as home occupations and bed and breakfast inns, may be permitted.

⁴ Private piers are only permitted in single-family residential use areas within Flounder Bay and along Cap Sante. All other residential piers are prohibited.

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 4.7.1: Preserve, protect, enhance and restore critical areas and shoreline ecological processes and functions through regulatory and non-regulatory means that may include required vegetated shoreline setbacks, acquisition of key properties, regulation of development, and incentives to encourage ecologically sound design and maintenance.
- Policy 4.7.2: Locate, design, construct, and operate development so as not to degrade water quality as measured by state water quality standards.
- Policy 4.7.3: Mitigate all reasonably foreseeable environmental impacts and achieve, at a minimum, no net loss of shoreline ecological functions.
- Policy 4.7.4: Identify unique and sensitive shoreline areas for permanent protection.
- Policy 4.7.17: Protect existing shoreline trees and other shade vegetation, especially in areas where surf smelt and/or sand lance spawning has been documented.
- Policy 4.8.2: Encourage projects that restore/rehabilitate/enhance shoreline resources. Strategies may include but are not limited to a simplified permit process, reduced or waiver of permits fees, public outreach, encouraging landowners to replant with native vegetation, tax relief, transfer of development rights, and City participation.
- 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 3. Shoreline Development Standards Matrix (Table 5.2 in Chapter 5.12 of the Shoreline Master Program)

Environment Designation	Min. Resid. Lot Size (sq.ft.)	Lot Coverage % of Area ¹	Max. Height	Setback ²	
				Water-Dependent	Non-Water-Dependent
Shoreline Residential					
Burrows Bay (between east end of Croatian Way and Skyline Way)	7,500	35% ³	35'	0'	25'
All other remaining areas	6,000 or 7,500	35% ³	35'	0'	60' ⁶
Urban					
Burrows Bay (Skyline Marina to Washington Park)	Per Zoning ⁴	50%	35'	0'	25'
All other remaining areas	Per Zoning ⁴	50%	50'	0'	25'
Urban Maritime	NA	50%	50'	0'	25'
Conservancy	NA	25% ³	25'	0'	100'
Natural	NA	NA	NA	0'	100'
Aquatic	NA	NA	-- ⁵	NA	NA

¹ Lot Coverage: Buildings or structures in the Shoreline Area shall not occupy a greater percentage of a lot than indicated.

² Setback: Setback shall be the minimum distance measured in feet from the ordinary high water mark on a horizontal plane perpendicular to the shoreline.

³ The impervious surface limits on residential development located in Chapter 5, Sections 5.8 and 5.9, supersede general lot coverage standards in this table.

⁴ See underlying zoning for minimum residential lot size within Urban environment designation

⁵ See adjacent upland designation

⁶ See DR 5.9 for setback reduction criteria, if applicable

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 (see Appendix B in the SMP).

4.4 General Cumulative Impacts Assessment

The following table (Table 4) 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 *Final Shoreline Analysis Report*, and additional analysis needed to perform this assessment. The *Final 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 4. 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
URBAN					
<p>Burrows Bay (the commercial areas within Skyline Marina and the seaward side of Skyline Marina from the marina entrance westward to Washington Park)</p>	<p>The Skyline Marina is built out with existing commercial (restaurants, shops and marinas and associated parking areas) and multi-family residential uses (condominiums). High degree of impervious surface coverage (79%) with very little vegetation. The shoreline is completely armored and overwater cover associated with the marina is extensive. Existing uses are in close proximity to shore.</p> <p>The area along the waterward side of Burrows Bay west of the marina entrance contains five large condominium buildings which have existing setbacks ranging from 8 to 33 feet. Up to seven additional undeveloped yet cleared lots are located farther west. These lots are zoned for commercial uses.</p>	<p>Future Development: It is likely that the undeveloped shoreline properties along the waterward side of Burrows Bay (approximately 1,400 feet of shoreline) could, over time, develop into commercial uses and multi-family development. Remaining areas are built-out and thus unlikely to undergo extensive redevelopment.</p> <p>Functions/Processes Impacted: Water Quantity: Surface runoff may increase with increased development footprints along the seaward side of the marina. Without treatment, this may lead to water quality degradation in some areas.</p> <p>Water Quality: The undeveloped shoreline areas along the seaward side of the marina would be most affected by any future development. Currently this area contains low-growing vegetation, which likely provides some nutrient and toxics removal. Future development would likely increase impervious surface and surface water runoff rates.</p> <p>Vegetation and Habitat: While the marina and multi-family development near the marina entrance are entirely armored with rock, the undeveloped property is not armored. This area has a naturally sloped shoreline with unconsolidated beach deposits throughout that is designated as a forage fish spawning area. Future development may result in shoreline armoring that might alter shoreline sediment movement and affect habitat for aquatic organisms. All areas lack significant vegetation for habitat purposes.</p>	<p>SMP policies for the “Urban” environment (see Section 5.10 in the SMP) state that the City should:</p> <ul style="list-style-type: none"> • Give priority to water-oriented uses over non-water-oriented uses. First priority should be given to water-dependent uses. Second priority should be given to water-related uses and third priority to water-enjoyment uses. • “Encourage uses that enhance ecological functions and/or enhance opportunities for the public use and enjoyment of this shoreline; new development shall not cause a net loss of shoreline ecological functions.” • “Encourage designs that incorporate conservation and restoration elements, such as restoration of intertidal habitat, shoreline vegetation, and enhancement of public access.” • “Require, where applicable, new development and/or redevelopment to include environmental cleanup (e.g., removal of contaminated soils) and restoration of the shoreline in accordance with state and federal requirements.” <p>Development regulations within the “Urban” environment state that “[n]ew, permanent buildings and structures shall be set back a minimum of twenty-five (25) feet from the ordinary high water mark. Setbacks are measured landward, on a horizontal plane, perpendicular to the shoreline. Setback requirements shall apply to non-water-dependent structures and uses (SMP DR 5.10.7).</p> <p>The SMP states that “[a]ll shoreline development and activity shall be located, designed, constructed, and managed in a manner that avoids, minimizes and/or mitigates adverse impacts to the environment” (DR 6.3.1). Mitigation shall be included for any shoreline development which is unable to avoid impacts through design modifications (DR 6.3.2).</p> <p>“All development activities approved under this Shoreline Master Program shall be designed and maintained consistent with the City’s Stormwater Management Plan and Engineering Design Standards” (DR 6.4.23).</p> <p>Clearing and grading is restricted to maintain the functions and values of the shoreline environment,</p>	<p>Any in- or over-water proposals would require review not only by the City of Anacortes, but also by the Washington Department of Fish and Wildlife (WDFW), the U.S. Army Corps of Engineers (Corps), and/or the Washington Departments of Ecology and Natural Resources. Each of these agencies is charged with regulating and/or protecting shorelines and the waters of Puget Sound, and would impose certain design or mitigation requirements on applicants. A project that includes in-water fill would require Corps review and permitting. For similar projects along the Puget Sound, a Biological Evaluation would be prepared to assess project impacts on listed fish and wildlife, and that document would be routed to U.S. Fish and Wildlife Service and National Marine Fisheries Service for Endangered Species Act review. These agencies would also impose certain design and mitigation requirements on a proposed project to minimize adverse impacts.</p> <p>As mentioned in the <i>Final Shoreline Analysis Report</i>, the City currently implements stormwater requirements as part of the NPDES Phase II permit. This requires applicants to develop and implement a Stormwater Management Program designed to reduce the discharge of pollutants from the City’s municipal storm water system to the maximum extent practicable and to protect water quality. Use of the current and future updated stormwater manuals will ensure that stormwater management is effectively designed to minimize/eliminate construction- and operations-related stormwater runoff impacts and mitigate any potential remaining adverse affects.</p>	<p>Because of the developed nature of this Urban designated area within Skyline Marina and the existing multi-family development near the marina entrance, future new development will likely be concentrated to the shoreline along the seaward side of Skyline Marina. Unmitigated new development in this area has the potential to further degrade the baseline condition.</p> <p>Strict implementation of the SMP will be needed to minimize impacts, and is expected to result in the long-term improvement in ecological function as the current condition is already heavily impacted by clearing and grading. Specifically, requirements for shoreline revegetation, minimization of impervious surface, and reduction of overwater cover and shoreline armoring will help minimize and mitigate impacts.</p> <p>Likewise, redevelopment within the marina will likely also result in minor improvements to ecological functions through revegetation and stormwater management.</p>

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
			<p>including protection of habitat and shoreline bluffs (Policy 6.5.3 and DR 6.5.4).</p> <p>Clearing and grading within shoreline jurisdiction shall only be permitted upon approval of a revegetation plan (DR 6.5.8).</p> <p>For Commercial uses, new overwater construction is prohibited, except for marinas, related facilities, and port facilities (DR 8.5.1). For Industrial uses, overwater development is restricted to only water-dependent industrial or port facilities (DR 8.6.1).</p> <p>New and expanded marinas shall be located, designed, constructed, and operated so as to minimize impacts to shoreline resources and adjacent residential property owners, as well as adjacent shoreline or water uses (DR 8.7.2).</p> <p>Residential development (including multi-family development) shall be located and designed to avoid the need for structural shore defense and flood protection works in the foreseeable future (DR 8.11.3).</p> <p>In the Aquatic designation:</p> <ul style="list-style-type: none"> Overwater development, when allowed, shall be designed and located to reduce associated environmental impacts. Strategies may include limiting the size of the footprint to that necessary to support the structure's intended use and/or extending the structure waterward to avoid shading of critical habitat (DR 5.6.2). New structures and uses in the Aquatic designation shall prevent water quality degradation and alteration of natural hydrographic conditions, and shall result in no net loss of ecological functions (DR 5.6.11). 		
<p>Guemes Channel</p>	<p>Urban designated areas along Guemes Channel include the Washington State Ferry Terminal, an undeveloped lot just east of the Ship Harbor Wetland, Lovric's Marina and some light manufacturing to the east of Lovric's Marina. Some vegetation,</p>	<p>Future Development: No change is expected to the Washington State Ferry Terminal. The undeveloped parcel just east of the Ship Harbor Wetland will likely be developed into multi-family residential or commercial use. Impacts to shoreline functions will depend upon location of the development footprint. However, with only approximately 200 linear feet east of the wetland boundary available for development in shoreline jurisdiction (not considering wetland buffers), potential</p>	<p>Same as above for Urban – Burrows Bay.</p> <p>In addition, in the Aquatic designation, redevelopment of existing historic overwater structures must document how the development will improve shoreline ecological functions (DR 5.6.4).</p>	<p>Same as above for Urban – Burrows Bay.</p> <p>As identified in the <i>Shoreline Restoration Plan</i> (Appendix B of the SMP), opportunities for improvements to shoreline ecological functions exist at the former old cannery building – reconstruction or reuse of this structure would likely include replacement of old piling and structural materials which have less impact on aquatic resources.</p>	<p>No changes or alterations are expected at the Washington State Ferry Terminal.</p> <p>Potential impacts just east of the Ship Harbor wetland may occur upon multi-family or commercial development which will likely occur in the near future. This may</p>

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
	<p>including overhanging vegetation, is present in Lovric's Marina.</p>	<p>development within shoreline jurisdiction is minimized.</p> <p>Of the two areas located within the Light Manufacturing zone, one is likely to be redeveloped (old cannery building) into commercial use. The second contains an existing use that is not anticipated to change. Any future on-site alterations would be through re-development. Any changes to over-water areas would likely entail overall improvements to habitat conditions given the requirements to provide on-site mitigation.</p> <p>Functions/Processes Impacted: Water Quantity: Besides the increase in impervious surface coverage and loss of vegetation in the future developed area just east of the Ship Harbor Wetland which may increase runoff rates into Puget Sound, no changes to water quantity are expected. Stormwater management requirements will help alleviate water quantity impacts.</p> <p>Water Quality: The undeveloped shoreline east of the Ship Harbor Wetland would be most affected by any future development. Currently this area contains a forested vegetation community which likely provides some nutrient and toxics removal. Future development would likely increase impervious surface and surface water runoff rates. Vegetation conservation and surface water management would help protect functions.</p> <p>Vegetation and Habitat: Some forested vegetation will likely be lost due to development east of the Ship Harbor Wetland. Protection of shoreline vegetation will help offset any future development. Future development should be positioned so as not to warrant future shoreline armoring.</p>			<p>include loss of vegetation and increase in impervious surfaces. Strict adherence to the SMP and critical areas regulations per Appendix A are necessary to ensure no net loss of functions in this area. However, it is likely that development in shoreline jurisdiction may already be minimized by wetland buffers.</p> <p>Redevelopment of old historic overwater structures along Guemes Channel are a possibility over time. Per SMP implementation, this would likely include structural improvements to reduce site impacts (i.e. grated decking, pile reduction, and improved materials).</p> <p>Given the above potential impacts and mitigation measures, no net loss of ecological functions is expected.</p>
<p>Fidalgo and Padilla Bays</p>	<p>Urban designated areas along Fidalgo Bay include the area from Cap Sante Park south to the south end of the current DNR property and also includes the</p>	<p>Future Development: Planned and future development includes planned upland and in-water cleanup at Cap Sante Marina in Fidalgo Bay and the lumber mill site in Padilla Bay. Redevelopment will likely include construction of a new dry storage and boat launch at Cap Sante Marina and</p>	<p>Same as above for Urban – Burrows Bay and Guemes Channel.</p>	<p>Same as above for Urban – Burrows Bay and Guemes Channel.</p> <p>As identified in the <i>Shoreline Restoration Plan</i> (Appendix B of the SMP), several opportunities for improvements to shoreline ecological functions exist:</p> <ul style="list-style-type: none"> • Cap Sante Marina 	<p>Given the existing condition of the approximately 16 undeveloped or under-developed lots in this shoreline area which includes site clearing, grading, compaction, and</p>

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
	<p>multi-family development and RV Park near Weaverling Spit. These areas include extensive impervious surface coverage (near 100% in some areas) related to water-dependent uses, including marinas, boat repair and construction services, commercial uses, etc.</p> <p>Urban designation is also proposed for the lumber mill site (former landfill) along Padilla Bay.</p>	<p>likely several other redevelopments of water-dependent uses. There are approximately 16 lots which are currently vacant or not currently fully developed but which may develop in the future. These lots have already been cleared of most vegetation, graded flat, and most contain shoreline armoring. Due to site compaction related to clearing and grading, most of these 16 lots are considered fairly impervious to infiltration. Future development of those lots would likely increase true impervious surface coverage (e.g. concrete, structures and paved surfaces), but should also include opportunities to improve shoreline functions where feasible through shoreline vegetation and stormwater management.</p> <p>Functions/Processes Impacted: Water Quantity: Slight increase in impervious surface coverage is possible with increased development of water-dependent uses. Opportunities to offset this impact through increased shoreline vegetation and adherence to stormwater management requirements.</p> <p>Water Quality: Future development, including cleanup of the Cap Sante Marina, would likely provide improvements to water quality by improving shoreline vegetation and surface water management.</p> <p>Vegetation and Habitat: Given the cleared and very developed nature of this Urban designated shoreline, little degradation of shoreline vegetation and habitat is anticipated. Where water-dependent uses are not proposed, future development should be positioned so as not to warrant future shoreline armoring and allow for enhancement of shoreline vegetation.</p>		<ul style="list-style-type: none"> • Scott Paper Mill • Former lumber mill (Padilla Bay) <p>These efforts include removal of unused piling and overwater structures and removal of contaminated materials – including contaminated sediment in upland and aquatic areas.</p>	<p>armoring in most instances, implementation of the SMP overtime with strict adherence to shoreline revegetation and stormwater management provisions is expected to have a net benefit to ecological functions. See further discussion in Section 5 under Urban – Fidalgo Bay.</p>
URBAN MARITIME					
<p>Guemes Channel and Fidalgo Bay These areas include Industrial and Marine Shipping</p>	<p>Existing conditions throughout the Urban Maritime designation include a high degree of impervious surfaces adjacent to the shoreline associated with water-</p>	<p>Future Development: No expansion or new development is anticipated within the Urban Maritime designation besides the redevelopment of the Custom Plywood Mill site into a yacht repair facility.</p> <p>Future development will likely include</p>	<p>SMP policies for the “Urban Maritime” environment (SMP Section 5.11) state that the City should:</p> <ul style="list-style-type: none"> • “Give preference to water-dependent transportation, shipping, Port, and manufacturing uses due to their proximity to deep shipping berths and channels and to navigable waters.” 	<p>Same as above for Urban – Burrows Bay.</p> <p>As identified in the <i>Shoreline Restoration Plan</i> (Appendix B of the SMP), several opportunities for improvements to shoreline ecological functions exist:</p> <ul style="list-style-type: none"> • Guemes Ferry Terminal • Anchor Cove Marina 	<p>Because of the developed nature of the Urban Maritime designated area including extensive water-dependent uses, future development will likely be restricted to redevelopment of existing</p>

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
<p>between Kiwanis Park and Cap Sante, and the shoreline south of the current DNR property to and including the former Custom Plywood Mill site south of Cap Sante Boat Haven. All of these areas serve industrial, marine service or shipping uses.</p>	<p>dependent uses. Vegetation, including overhanging vegetation, is largely absent in these areas.</p>	<p>redevelopment of existing uses and structures. Reconstruction of existing overwater structures is anticipated. Restoration and enhancement of shoreline functions will likely occur in the future at the Custom Plywood Mill, Dakota Industries and Trident Seafoods properties. Overall restoration or enhancement of shoreline conditions would likely include removal of unused pilings.</p> <p>Functions/Processes Impacted: Water Quantity: With little to no expansion of impervious surface coverage expected, no significant change to water quantity is expected. All future development would adhere to stormwater management requirements. Water Quality: Future cleanup at the Custom Plywood Mill, Dakota Industries and Trident Seafoods sites, along with any other future restoration projects, would likely provide some improvements to water quality by removing contaminated materials such as creosote piling and concentrations of historic wastes. Vegetation and Habitat: Given the cleared and very developed nature of the Urban Maritime shorelines associated with the existing water-dependent uses, future degradation of shoreline vegetation is not anticipated. Where water-dependent uses are not proposed or as opportunity allows, future development or redevelopment should include enhancement of shoreline vegetation.</p>	<ul style="list-style-type: none"> • “Encourage expansion of water-dependent and water-related uses.” • “Industrial and commercial development along Urban Maritime shorelines should provide protection of existing ecological functions where practicable and mitigated. It should also provide public access opportunities only where appropriate and where public safety would not be compromised and alternative off-site provision has been made.” <p>Development regulations within the “Urban Maritime” environment state that “[n]ew, permanent buildings and structures shall be set back a minimum of twenty-five (25) feet from the ordinary high water mark. Setbacks are measured landward, on a horizontal plane, perpendicular to the shoreline. Setback requirements shall apply to non-water-dependent structures and uses (SMP DR 5.11.9).</p> <p>Additionally, where applicable, new development would be required to include environmental cleanup (e.g. removal of contaminated soils) and restoration of the shoreline in compliance with state and federal laws (DR 5.11.2).</p> <p>Any impacts to ecological functions shall be fully mitigated with the mitigation sequencing defined in Chapter 12. If mitigation is required for water-dependent use, off-site mitigation in conjunction with appropriate on-site mitigation would be most appropriate (DR 5.11.4).</p> <p>Residential or transient accommodation uses are prohibited (DR 5.11.6).</p> <p>The SMP states that “[a]ll shoreline development and activity shall be located, designed, constructed, and managed in a manner that avoids, minimizes and/or mitigates adverse impacts to the environment.” (DR 6.3.1) Mitigation shall be included for any shoreline development which is unable to avoid impacts through design modifications (DR 6.3.2).</p> <p>“All development activities approved under this Shoreline Master Program shall be designed and maintained consistent with the City’s Stormwater Management Plan and Engineering Design Standards” (DR 6.4.23).</p>	<ul style="list-style-type: none"> • Dakota Industries • Trident Seafoods • N Avenue street-end beach cleanup and restoration • Custom Plywood Mill <p>These efforts include removal of unused piling and overwater structures and removal of contaminated materials – including contaminated sediment in upland and aquatic areas.</p>	<p>uses and structures.</p> <p>Strict implementation of the SMP is expected to include shoreline enhancements (vegetation, softening of shoreline armoring, etc.) which will provide overall long-term improvements to shoreline functions.</p> <p>Redevelopment of the Custom Plywood Mill property, including cleanup and restoration of historic in-water structures and waste deposits, will provide significant improvements to shoreline ecological functions.</p> <p>Specifically, requirements for non-water dependent setbacks, environmental cleanup, shoreline revegetation, and reduction of overwater cover and shoreline armoring will help minimize and mitigate impacts.</p>

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
			<p>Clearing and grading is restricted to maintain the functions and values of the shoreline environment, including protection of habitat and shoreline bluffs (Policy 6.5.3 and DR 6.5.4).</p> <p>Clearing and grading within shoreline jurisdiction shall only be permitted upon approval of a revegetation plan (DR 6.5.8).</p> <p>For Commercial uses, new overwater construction is prohibited, except for marinas, related facilities, and port facilities (DR 8.5.1). For Industrial uses, overwater development is restricted to only water-dependent industrial or port facilities (DR 8.6.1).</p> <p>New and expanded marinas shall be located, designed, constructed, and operated so as to minimize impacts to shoreline resources and adjacent residential property owners, as well as adjacent shoreline or water uses (DR 8.7.2).</p> <p>In the Aquatic designation:</p> <ul style="list-style-type: none"> Overwater development, when allowed, shall be designed and located to reduce associated environmental impacts. Strategies may include limiting the size of the footprint to that necessary to support the structure's intended use and/or extending the structure waterward to avoid shading of critical habitat (DR 5.6.2). New structures and uses in the Aquatic designation shall prevent water quality degradation and alteration of natural hydrographic conditions, and shall result in no net loss of ecological functions (DR 5.6.11). 		
Shoreline Residential					
Burrows Bay	The residential areas along Burrows Bay are dominated by single-family residences. Most waterfront property is developed or prepared for development (i.e. cleared and graded with shoreline armoring and piers/docks for Flounder Bay properties). Nearly the entire shoreline is	Future Development: Currently three lots outside of Flounder Bay are undeveloped, but only one is immediately adjacent to the shoreline. Additionally, one active subdivision application is also under review which may add more waterfront development. Within Flounder Bay, 18 of the 88 waterfront lots are undeveloped (yet cleared of vegetation, graded, and prepped for development – including shoreline armoring and pier/dock moorage).	SMP policies for the “Shoreline Residential” environment (SMP Section 5.9) state that the City should: <ul style="list-style-type: none"> “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.” “Minimize impacts to bluffs by requiring shoreline development to implement low impact development (LID) stormwater techniques.” 	Same State and Federal implications as outlined above for Urban – Burrows Bay.	New and redevelopment has the potential to degrade the baseline condition in areas outside of Flounder Bay, specifically east of Croatian Way. Strict implementation of the SMP and the critical areas regulations should minimize impacts in this area. 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
	<p>armored. Nearly all properties within Flounder Bay have either single- or joint-use pier access. No piers/docks are located outside of Flounder Bay in Burrows Bay.</p>	<p>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.</p> <p>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.</p> <p>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.</p>	<p>Additional policies in the Residential Development uses section (SMP Section 8.11) include:</p> <ul style="list-style-type: none"> • “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” • “Ensure that all residential development is designed... [t]o preserve and enhance existing shoreline vegetation, control erosion and protect water quality, ecological resources and shoreline aesthetics of the shoreline both during and after construction.” • “Encourage joint use of shoreline facilities including access stairs.” <p>“All development activities approved under this Shoreline Master Program shall be designed and maintained consistent with the City’s Stormwater Management Plan and Engineering Design Standards” (DR 6.4.23).</p> <p>A detailed discussion of effects of SMP provisions related to residential setbacks is presented below in Section 5.1. The regulations in SMP Section 5.9 provide for a protective setback of 60 feet in areas outside of Flounder Bay and a small section along Burrows Bay (which currently have 25-foot setbacks), and allowances for reductions of the 60-foot setback that could occur only when paired with mitigation elements for restoration and enhancement of functions.</p> <p>A detailed discussion of effects of SMP provisions related to residential overwater structures is presented below in Section 5.2. The regulations in SMP Section 9.5 contain strict dimensional and materials standards.</p> <p>A detailed discussion of effects of SMP provisions related to new and replacement shoreline stabilization is presented below in Section 5.3. The regulations contained within SMP Section 9.11 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.</p>		<p>substantial shoreline hardening and/or supplementation of native shoreline plantings, ecological function in developed residential areas could improve in the long term.</p> <p>For areas designated for a 25-foot residential building setback within Flounder Bay and adjacent area along Burrows Bay, future development of vacant lots will likely provide improvements to shoreline functions. Undeveloped waterfront lots within Flounder Bay are currently cleared of vegetation and graded flat. They all are heavily armored and have overwater structures. Development of those lots with single-family residential uses will include improvements to shoreline functions through shoreline vegetation and potential stormwater controls.</p>

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
<p>Guemes Channel (including area on Fidalgo Head between Washington Park and Shannon Point, Guemes Channel, and Cap Sante. Note: the Fidalgo Head and Guemes Channel residential designated areas are proposed to have a parallel 100 foot Conservancy designation along the shoreline)</p>	<p>Most residential development is located landward of steep slope areas immediately adjacent to shore resulting in average setbacks greater than 100 feet. Many undeveloped lots are located along Guemes Channel. However, the majority of those are not buildable given the geologic conditions and are otherwise deep enough to locate building footprints outside of the proposed 100-foot Conservancy designation.</p>	<p>Future Development: Several lots are likely to develop with single-family residential uses in the future.</p> <p>Along Guemes Channel including Fidalgo Head and the area between Ship Harbor and Cap Sante, development is not likely to occur near the water given the geologic constraints and proposed parallel Conservancy designation. This includes a potential 21.8-acre lot planned for subdivision into single-family residential uses just east of the Ship Harbor Wetland.</p> <p>Most future development would likely occur through redevelopment.</p> <p>Functions/Processes Impacted: Water Quantity: Potential loss of vegetative cover and increased impervious surfaces associated with new development may lead to increased delivery of surface waters to Puget Sound. Water Quality: Future development of residential uses may impact water quality by 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. Improvements to vegetation coverage may also occur through implementation of development regulations which require shoreline planting areas.</p>	<p>Same policies and regulations as above for Shoreline Residential – Burrows Bay.</p> <p>Further, the residential setback in these areas is 60 feet (SMP Section 5.9.6).</p> <p>Parallel designation along Guemes Channel including Fidalgo Head and the area between Ship Harbor and Cap Sante will protect the Guemes Channel Trail, bluff, and unique ecological functions provided by these stretches of shoreline.</p>	<p>Same State and Federal implications as outlined above for Urban – Burrows Bay,</p>	<p>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.</p>

Conservancy					
<p>Puget Sound (Fidalgo Head, Shannon Point, Guemes Channel, Cap Sante and Rotary Park, and Fidalgo Bay)</p>	<p>The Conservancy designation along the City's marine shorelines includes more heavily used City parks, Shannon Point Marine Center, parallel designation along Guemes Channel, and the Fidalgo Bay both north and south of Weaverling Spit. Existing conditions include the following:</p> <p>Washington Park: paved parking, boat launch and open lawn/beach areas</p> <p>Shannon Point: includes a 100-foot parallel designation along small residential area and a well vegetated shoreline along waterward side of the Shannon Point Marine Center east to Shannon Lake.</p> <p>Guemes Channel: parallel designation includes newly created Guemes Channel Trail and vegetated steep slope</p> <p>Rotary and Cap Sante Parks: few shoreline modifications exist along this shoreline besides the Cap Sante Spit – most of the shoreline is a passive recreation beach trail.</p> <p>Fidalgo Bay: north and south of Weaverling Spit, existing conditions include portions of Tommy Thompson Trail, Fidalgo Bay Road, March Point Drive, and State Route 20. Some existing residential uses are present along the western shoreline.</p>	<p>Future Development: There is little likelihood of future changes through these shoreline areas with the exception of the residential properties along the south end of Fidalgo Bay. These properties may develop or redevelop in the future. Some future modifications to the boat ramp and parking lot are also possible in Washington Park although no such activities are currently planned.</p> <p>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.</p> <p>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.</p> <p>Vegetation and Habitat: Development of residential areas along Fidalgo Bay may result in a loss of some existing vegetation, including tree canopy. Preservation and enhancement of vegetation in this and other areas will ensure protection of existing functions. Improvements to vegetation coverage may also occur in beach areas around Washington Park.</p>	<p>SMP policies for the "Conservancy" environment (SMP Section 5.8) state that the City should:</p> <ul style="list-style-type: none"> • "Ensure the preservation of scenic and non-renewable natural resources and the conservation of renewable resources for the benefit of existing and future generations, by limiting permitted uses and assuring that they are located and designed appropriately." • "Give priority to water-oriented uses over non-water-oriented uses. For shoreline areas adjacent to commercially navigable waters, water-dependent uses that cannot be reasonably located in other environments should be given highest priority." • "Establish best management standards for shoreline stabilization measures, vegetation conservation, water quality, and shoreline modifications within the Conservancy designation to ensure that new development does not result in a net loss of shoreline ecological functions or further degrade other shoreline values." <p>Development regulations within the Conservancy environment state that "development that would reduce the capability of vegetation to perform normal ecological functions or that would have a significant ecological impact on the area is prohibited" (DR 5.8.1a).</p> <p>"The subdivision of property to support additional residential, commercial or industrial uses that would require significant vegetation removal or shoreline modification within the Conservancy designation... must ensure that uses and modifications proposed ... results in no net loss of ecological functions (DR 5.8.1b).</p> <p>Permanent structures, storage, and hard surfaces shall be set back a minimum of one-hundred (100) feet (DR 5.8.3).</p> <p>Clearing and grading is restricted to maintain the functions and values of the shoreline environment, including protection of habitat and shoreline bluffs (Policy 6.5.3 and DR 6.5.4).</p> <p>Clearing and grading within shoreline jurisdiction shall only be permitted upon approval of a revegetation plan (DR 6.5.8).</p> <p>"Applicants proposing development adjacent to a</p>	<p>Similar effects from other State and Federal agencies discussed above under Urban – Burrows Bay would also apply.</p> <p>As identified in the <i>Shoreline Restoration Plan</i> (Appendix B of the SMP), numerous opportunities for improvements to shoreline ecological functions exist through a variety of mechanisms including property acquisition, shoreline enhancement, and restoration.</p> <ul style="list-style-type: none"> • Guemes Channel Trail revegetation • Reposition rip-rap adjacent to Tommy Thompson Trail south of the old Custom Plywood Mill to enhance beach for forage fish spawning • Reconnect shoreline associated wetland located north of Weaverling Spit • Restore Tommy Thompson railroad trestle fill with an improved design which will allow continued trail use while improving tidal circulation and sediment transport. • Acquire beach along north shoreline of Weaverling Spit • Acquire wooded headland at south end of Fidalgo Bay <p>These efforts include removal of unused piling and overwater structures and removal of contaminated materials – including contaminated sediment in upland and aquatic areas.</p>	<p>While there is some pressure for new and re-development along Guemes Channel (Guemes Channel Trail) and Fidalgo Bay (limited residential use south of Weaverling Spit), 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. 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.</p> <p>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 Conservancy designated shorelines.</p>

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
			<p>marine bluff shall submit a geotechnical engineering report...when development is proposed within:</p> <ul style="list-style-type: none"> a. 50 feet of the crest of a marine bluff, or a distance equal to the height of the slope up to a distance of 100 feet from the crest (measured from the top), whichever is greater; b. 50 feet from the sides of a marine bluff; or c. 50 feet from the toe of a marine bluff"; (DR 6.9.1) <p>and "[a]ll proposed development on a marine bluff or in the required buffer, shall be prohibited, except:</p> <ul style="list-style-type: none"> a. As may be allowed in the Critical Areas Regulations under Subsection 3.5 of Appendix A of this Master Program. b. Minor development to provide public access (e.g., public trails, stairs or view points), provided that impacts are mitigated and the development can be shown to be safe." (DR 6.9.3) <p>Valuable shoreline resources and fragile or unique areas, such as wetlands and accretion shore forms, shall be used only for non-intensive recreation activities (DR 8.10.3).</p> <p>Waterward of the ordinary high water mark, no recreational buildings or structures shall be built, except water-dependent and/or water-enjoyment structures as follows: docks, bridges, piers, public boat launches, marinas, and viewing platforms (DR 8.10.4)</p> <p>Recreation developments that require the use of fertilizers, pesticides, or other chemicals shall utilize methods to prevent chemicals and leachates from entering adjacent water bodies and wetlands. Natural buffers of 50 feet wide from the OHWM shall be used as well as a 100-foot-wide chemical-free swath. (DR 8.10.5)</p>		
<p>Freshwater Lakes (Whistle, Heart, Cranberry Lakes)</p>	<p>The Conservancy areas along these three freshwater lakes contain existing trails, roads, and shoreline access points as well as potential future expansion of passive recreation uses. In the case of Heart Lake, this</p>	<p>Future Development: Anticipated future development would likely be concentrated at Heart Lake and include modifications to the main parking area, shoreline access expansion via additional passive access trails, and potentially a non-motorized launch for kayaks and canoes north of the main parking lot. The City's Parks Department is committed to protecting and enhancing shoreline functions along these freshwater systems.</p>	<p>SMP policies same as above for Conservancy – Puget Sound.</p> <p>Permanent structures, storage, and hard surfaces shall be set back a minimum of one-hundred (100) feet (DR 5.8.3).</p> <p>Clearing and grading is restricted to maintain the functions and values of the shoreline environment, (Policy 6.5.3 and DR 6.5.4).</p>	<p>Similar effects from other State and Federal agencies discussed above under Urban – Burrows Bay would also apply.</p> <p>While no specific restoration projects are identified in the <i>Shoreline Restoration Plan</i>, the <i>Anacortes Community Forest Lands Comprehensive Plan 2009</i> contains several goals and policies aimed at maintaining and enhancing ecological functions while preserving the countless recreational opportunities</p>	<p>No net loss of ecological functions is expected as no detrimental alterations to the existing conditions are likely to occur along the Conservancy designated shorelines of these freshwater lakes. Future alterations to shoreline conditions that might occur</p>

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
	<p>includes Heart Lake Road and a large parking lot adjacent to the shoreline. The north end of Cranberry Lake includes a small parking area and recreational beach.</p>	<p>No changes or future development are anticipated at Cranberry and Whistle Lakes beyond normal maintenance of trails and shoreline access.</p> <p>Functions/Processes Impacted: No adverse impacts to function/processes are anticipated in the future.</p> <p>Water quality improvements are anticipated through proper stormwater management associated with parking lot redevelopment at Heart Lake.</p> <p>Habitat enhancement, including revegetation, would likely occur through potential improvements to the parking lot at Heart Lake.</p>	<p>Clearing and grading within shoreline jurisdiction shall only be permitted upon approval of a revegetation plan (DR 6.5.8).</p> <p>Valuable shoreline resources and fragile or unique areas, such as wetlands and accretion shore forms, shall be used only for non-intensive recreation activities (DR 8.10.3).</p> <p>Waterward of the ordinary high water mark, no recreational buildings or structures shall be built, except water-dependent and/or water-enjoyment structures as follows: docks, bridges, piers, public boat launches, marinas, and viewing platforms (DR 8.10.4)</p> <p>Recreation developments that require the use of fertilizers, pesticides, or other chemicals shall utilize methods to prevent chemicals and leachates from entering adjacent water bodies and wetlands. Natural buffers of 50 feet wide from the OHWM shall be used as well as a 100-foot-wide chemical-free swath. (DR 8.10.5)</p>	<p>available to the community. Non-profit organizations, such as <i>Friends of the Forest</i>, are focused on preservation through education, outreach, stewardship and advocacy. Ongoing restoration projects by Friends of the Forest include invasive species control at Heart Lake and Whistle Lake, and native plant restoration at Cranberry Lake.</p>	<p>with parking and trail developments along Heart Lake are anticipated to have beneficial effects on shoreline ecological functions.</p>
Natural					
<p>Puget Sound and Freshwater Lakes (Fidalgo Head, Shannon Point, Guemes Channel, Cap Sante Park, along with the freshwater lakes – Whistle, Heart, Cranberry and Erie)</p>	<p>Currently, only the Natural area within Washington Park contains passive recreation trails, roads, and shoreline access. Other Natural designated areas, including Shannon Point, Lake Shannon, Ship Harbor Wetland, and Cap Sante Park, do not contain formal trails or other shoreline uses or modifications.</p> <p>The Natural designated areas which surround these four freshwater lakes each contain passive recreation trails. Otherwise, these areas</p>	<p>Future Development: No future development is anticipated. Future planned activities sponsored by the Shannon Point Marine Center may include restoration of Lake Shannon by reconnection as a salt water estuary.</p> <p>No future development is anticipated beyond typical trail maintenance activities surrounding the freshwater lakes.</p> <p>Functions/Processes Impacted: No adverse impacts to function/processes are anticipated in the future. Habitat enhancement would likely occur through potential reconnection of Lake Shannon.</p> <p>No adverse impacts to function/processes associated with the freshwater lakes are anticipated in the future.</p>	<p>SMP policies for the “Natural” environment (SMP Section 5.7) state that the City should:</p> <ul style="list-style-type: none"> “Allow uses that are in keeping with the primary goal of environmental protection. To the extent feasible, new uses and activities should be limited to restoration projects and public access or recreational/educational uses.” “Preserve and enhance ecological functions of the area by appropriately designing permitted uses.” <p>Development regulations within the Natural environment state that “[a]ny development that would substantially degrade ecological functions or the natural character of the shoreline (e.g., armoring of the shoreline that would interrupt habitat forming processes taking place within drift cells) is prohibited” (DR 5.7.1a).</p> <p>Uses that result in restoration of ecological functions and/or fish and wildlife habitat are encouraged if the use is otherwise compatible with the character of the</p>	<p>Similar effects from other State and Federal agencies discussed above under Urban – Burrows Bay would also apply.</p> <p>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. For example, the derelict pilings and slag metal from the old cannery operation located waterward of the OHWM adjacent to the Ship Harbor wetland could be removed to restore shoreline functions (<i>Shoreline Restoration Plan – See Appendix B of the SMP</i>).</p> <p>For the freshwater lakes, same effects listed above for Conservancy – Freshwater Lakes.</p>	<p>No net loss of ecological functions is expected as no detrimental alterations to the existing conditions in this environment are likely to occur.</p>

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
	are in a naturally forested state.		<p>area (DR 5.7.2).</p> <p>For setbacks, “[u]nless otherwise specified herein, permanent structures, storage, and hard surfaces are prohibited (DR 5.7.4).</p>		

5 DEVELOPMENT IMPLICATIONS

In addition to the general cumulative impacts analysis presented in the table above, this section will expand on several key areas of functions and impacts associated with new and redevelopment within the “Shoreline Residential” and “Urban” environment designations (specifically, the Urban designated shoreline within Fidalgo Bay).

5.1 Shoreline Residential

5.1.1 Residential Setbacks

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.

The original Shoreline Master Program had a minimum residential setback of 25 feet. Under the proposed SMP (SMP **Section 5.12**), the minimum standard shoreline setback will be 60 feet, except for the properties located in Burrows Bay between the east end of Croatian Way and Skyline Way where the setback will remain at 25 feet. In this area of Burrows Bay, existing development has been, in most cases, positioned immediately landward of shoreline armoring (10 out of 12 lots in Reach 2 [see *Final Shoreline Analysis Report*] are built with virtually no setback). Within Flounder Bay, existing building footprints are set back an average of 21 feet. However, in most of those instances, decks, patios, and other

hard structural elements are often positioned waterward of the building footprint leading to further decline in shoreline functions. Implementation of a 25-foot setback under the proposed SMP should result in improvements to shoreline functions over time as property is redeveloped by reducing the amount of impervious surface and increasing vegetation along the shoreline.

The 60-foot setback imposed in the remaining areas may be reduced by 25 percent through shoreline enhancement or if unique conditions exist (DR 5.9.6), and may be reduced by 50 percent if a reasonable development footprint cannot be established even with a 25 percent reduction. In either case of setback reduction, mitigation shall be proposed to offset any potential impacts to shoreline functions. Given the proposed parallel designations along Fidalgo Head and Guemes Channel, the 60-foot setback and setback reduction alternatives are only likely to occur in the residential areas along Burrows Bay and Cap Sante. Considering the total length of shoreline within the City’s jurisdiction, these residential areas do not constitute a substantial portion of the City’s total shoreline. The majority of areas designated as Shoreline Residential are protected not only by development regulations in the SMP but also by parallel Conservancy designations.

According to the City’s GIS data, the average residential setback for the respective shoreline areas and a breakdown of setbacks is listed in Table 5. This table lists the cumulative number of structures which fall into each category. For example, along Cap Sante, four structures are located within 25 feet from shore and a total of seven structures are located within 40 feet from shore. The seven structures listed under the <40’ column include the four structures which are less than 25 feet from shore.

Table 5. Breakdown of existing and average building setbacks in the Shoreline Residential environment.

Location	Number of Developed Lots with Structures Less than Category – Values are cumulative							Total Lots	Average Setback
	<25’	<40’	<50’	<60’	<75’	<100’			
Burrows Bay – East of Croatian Way	1	4	5	6	9	13	15	73	
Burrows Bay – West of Croatian Way and Skyline Marina	53	64	67	72	75	76	78	20	
Fidalgo Head (between Washington Park and Shannon Point)	0	0	1	1	2	2	6	111	
Guemes Channel	0	0	0	0	3	10	53	147	
Cap Sante	4	7	12	16	17	20	20	68	

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 Anacortes, these evaluation methods are quite variable due to the landscape characteristics. For example, several areas along Guemes Channel and Cap Sante have landscape characteristics (high bluffs and rocky shores) that do not support waterward encroachment. However, other areas, such as Burrows Bay and Flounder Bay, allow for waterward development up to 25 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 marine shoreline environment where water quantity is not really a factor 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. An impervious surface standard has been set at 20 to 30 percent for single-family lots, depending upon the slope of the lot, with provisions for a minimum of 15 percent retained or replanted native vegetation along the shoreline (**DR 5.9.10**). This 15 percent area shall include the most waterward block of vegetation (**DR 5.9.11**). 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 within shoreline jurisdiction include the implementation of a detailed landscape revegetation and monitoring plan (**DR 6.5.9**). Proposed new or redevelopment of non-water-dependent uses other than public shoreline access trails that will abut the City's marine shorelines must include a landscape plan which specifies a minimum of 6-foot-wide planting areas along the shoreline.

Relative to the existing conditions in the Shoreline Residential environment along Burrows Bay and Flounder Bay, the implementation of 25-foot setbacks, impervious surface restrictions, and revegetation standards will likely result in improvements to ecological functions over time (benefiting terrestrial and

aquatic species). The remaining areas designated as Shoreline Residential environments will be further protected with a 60-foot setback. These areas (Guemes Channel and Cap Sante) include high bluff environments which are naturally protected by site topography that precludes most encroachments waterward of the top of slope. Furthermore, the majority of Guemes Channel and the small residential area along Fidalgo Head are protected by a parallel Conservancy designation along the waterward side.

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, parallel designations, 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.

5.1.2 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, most overwater structures directly associated with a single-family residential use are located within Flounder Bay. Only two other overwater structures currently exist (northern shoreline of Cap Sante) in the Shoreline Residential environment, with one application currently pending for a pier/dock along the east shoreline of Cap Sante.

The proposed SMP prohibits docks, piers, and floats for single-family residential use outside of Flounder Bay and Cap Sante. Therefore, it is not anticipated that new structures will be developed outside of these areas.

Within Flounder Bay's residential area, there are approximately 69 separate pier/dock structures. Of these, many are located along property lines and appear to be joint-use. Several are also located on lots which are not yet developed with a single-family residence. Only one lot appears to not have direct pier/dock access. Thus, only one new pier/dock would be anticipated in the future. All other shoreline modifications related to overwater structures are expected to be for repairs, replacements, or expansions.

Along Cap Sante two properties located along the north shoreline in a protected bay have existing pier/dock structures. One new pier/dock structure is currently proposed along the eastern shoreline. The SMP would allow for new piers/docks to be constructed in this reach, with encouragement for joint-use structures. Given the steep rocky landscape along most of Cap Sante, new pier construction is expected to be rare. Although allowed under the prior SMP, only two piers have been constructed in this area. Therefore, future pier/dock development is expected to be limited to approximately four new structures.

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 only requires piers and docks to be constructed to the minimum size necessary to meet the needs of the proposed water-dependent use. Under the proposed SMP, dimensional criteria for new, expansion, and replacement structures is included (**DR 9.5.13**) in order to reduce potential impacts. These criteria are excerpted from the U.S. Army Corps of Engineers Regional General Permit 6 (RGP-6) for overwater structures associated with residential development.

Under the proposed SMP, these criteria will include: 1) pier width of 6 feet or less; 2) grated decking; 3) float width of 8 feet or less; and 4) pier and float orientation designed to minimize light impacts.

As mentioned above, only five new piers/docks are anticipated in the next 20 years under the proposed SMP. Therefore, future potential impacts associated with residential overwater structures will be through repairs, replacement or expansion. Given the proposed dimensional and orientation criteria, the obvious limitations on structure size within Flounder Bay due to navigation, and the difficulty to build new docks along Cap Sante, it is unlikely that significant expansion of overwater cover would occur. Rather, it is likely that an overall reduction in overwater cover would result due to the installation of light-transmitting grated decking through repair and replacement projects.

It is anticipated that replacement proposals may become even more common as existing piers/docks degrade or do not meet the property owner's needs in their current configuration or location. Under the proposed SMP, existing piers and docks could be replaced at the same size as the existing pier, as long as the structure meets the size and orientation requirements and contains the specified amount of light-transmitting decking material.

Grated decking is also a mitigating factor encouraged by the Washington Department of Fish and Wildlife (WDFW). Any new or replacement structure would require a Hydraulic Project Approval (HPA) from WDFW. The combined effects of the City's proposed SMP and permit approvals from WDFW and the Army Corps of Engineers will likely result in a reduction of the net amount of overwater coverage in the Shoreline Residential environment and an increase in the amount of light-transmitting decking over time.

5.1.3 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 emergent vegetation that provide forage and cover may be reduced or eliminated. Elimination of shallow-water habitat, including eelgrass and other vegetation, 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 (**DR 9.11.1**), new shoreline stabilization (using hard or soft methods) would only be allowed if shown to be "necessary to support or protect a legally established, inhabited structure or ongoing shoreline use that is in danger of loss or substantial damage or when necessary for reconfiguration of the shoreline for mitigation or enhancement." It must be demonstrated in a study prepared by a qualified professional (e.g. coastal engineer) that the proposed stabilization is the least harmful method to the environment and the project will mitigate adverse impacts to achieve "no net loss of ecological functions necessary to support shoreline resources" (**DR 9.11.3**).

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 (**DR 9.11.6**).

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, all developed properties within the Shoreline Residential environment along Burrows Bay (including all developed and undeveloped properties within Flounder Bay) currently have bulkheads. Other areas within the Shoreline Residential environment (Fidalgo Head, Guemes Channel, and Cap Sante) are already protected by either rock bluffs or existing development (i.e. Guemes Channel Trail). Therefore, the need for new shoreline stabilization is expected to be limited to none. 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 which could be applied to some properties along Burrows Bay, east of Croatian Way (**DR 5.9.6**). Measures to soften existing hardened shorelines could also be implemented throughout Burrows Bay.

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.

5.2 Urban and Urban Maritime– Fidalgo Bay

As stated in Table 4, the Urban designated area along Fidalgo Bay includes Cap Sante Boat Haven south to and including the current DNR property. Areas south of the DNR property to the former Custom Plywood Mill site, are designated as Urban Maritime. The evaluation below provides a more in-depth assessment of future potential development and likely impacts to shoreline functions in this area. As stated above, there are approximately 16 undeveloped lots within this stretch. These lots are typically cleared, graded, compacted, and armored in most instances. Examples of these lots are shown in Figures 1 and 2.



Figure 1: Aerial photos of Fidalgo Bay shorelines south of Cap Sante Boat Haven.



Figure 2: Aerial photos of Fidalgo Bay Urban designated shorelines including DNR owned property.

Figures 1 and 2 depict the typical development potential with this stretch of Fidalgo Bay’s shorelines. Most undeveloped or under-developed lots have already been historically cleared of vegetation and most likely used for marine

industrial or commercial related uses such as boat or equipment storage, boat launches, etc. Historically, this area was part of Anacortes' booming logging and lumber industries, later redeveloping with marine shipping and processing. Currently, most of the surrounding shoreline lots include a variety of industrial and commercial uses such as boat repair and manufacturing, marinas and boat launches, short and long-term boat storage (both upland and over-water), and parking. It is expected that future use of these undeveloped or under-developed shoreline lots will include similar water-oriented uses. Redevelopment will likely include construction of a new dry storage and boat launch at Cap Sante Marina and likely several other redevelopments of water-dependent uses. Water-oriented uses are likely to be primarily water-related with accessory water-dependent uses. As such, if these lots were to redevelop, they would need to adhere to the 25-foot setback provision listed in Table 5.2 of the SMP. Additionally per SMP **DR 6.5.9**, all applicants for proposed new development or redevelopment of non-water dependent uses (other than public shoreline access trails that will abut the City's marine shorelines) must include a revegetation plan for a minimum 6-foot-wide planting area within an area no more than 15 feet from shore. Given the existing conditions which lack any significant shoreline vegetation on these lots, future development has the potential to improve vegetative and habitat functions.

Future new aquaculture uses are possible in both the Urban and Urban Maritime environments as a Conditional Use. Per the development regulations in Chapter 8.4.C, any new aquaculture facility shall be located and designed to avoid:

- a. loss of ecological functions,
- b. impacts to eelgrass and macroalgae,
- c. significant conflict with navigation and water-dependent uses,
- d. the spreading of disease,
- e. introduction of non-native species, or
- f. impacts to shoreline aesthetic qualities.

Any unavoidable impacts after mitigation sequencing must be mitigated. Given the limited availability of appropriate aquaculture facility areas within the City, future uses are likely to be located within the northern portion of Fidalgo Bay, but will likely be constrained by neighboring marine services and industrial uses. Future applications are expected to be rare.

As noted in the *Shoreline Restoration Plan*, active and future restoration of shoreline areas within this reach includes the Port's efforts within Cap Sante Boat Haven (Figure 3). These include environmental clean-up, shoreline restoration, installation of a wave-break and reef habitat to provide long-term beach stability. Planned clean-up includes removing wood debris and sediment from Fidalgo bay, including an existing timber breakwater. The Port is also working with

Kimberly Clark on restoration of the former Scott Paper Mill site (Figure 3). This includes soil remediation as well as revegetation.



Figure 3: Aerial photos of sites with active and proposed restoration of shoreline functions (Scott Paper Mill site and Cap Sante Marina).

While moderate degradation of shoreline ecological functions is expected in these Urban and Urban Maritime designated shorelines via continued water-dependent uses (proliferation of impaired function), the above restoration efforts along with potential improvements to shoreline functions through redevelopment and adherence to SMP provisions listed in Table 4 will ensure no net loss of shoreline ecological functions will be achieved over time.

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 Anacortes 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 5), 2) general provisions (Chapter 6), 3) shoreline use provisions (Chapter 8), 4) shoreline modification provisions (Chapter 9), and 5) Shoreline Restoration Plan (Appendix B).

Environment designations: The *Final Shoreline Analysis Report* provided the information necessary to assign environment designations along the Puget Sound and freshwater lake shorelines (see **Chapter 5**). 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 Urban Maritime, Urban, Shoreline Residential, and Conservancy, and Natural environments. The only uses allowed in the Natural environment are related generally to restoration, scientific studies, and passive recreation. Parallel Conservancy designations along certain residential shorelines (Fidalgo Head and Guemes Channel) further ensures protection of shoreline ecological functions in these areas.

General provisions: **Chapter 6** contains a number of regulations on a variety of topics that contribute to protection and restoration of ecological functions, including **Section 6.4** (Environmental Elements), **Section 6.5** (Vegetation Conservation), **Section 6.7**(Fish and Wildlife Habitat Conservation Areas), **Section 6.9**(Geologically Hazardous Areas), and **Section 6.10**(Wetlands).

Shoreline use provisions: Regulations in **Chapter 8** 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 water-dependent uses that are essential to the City's waterfront use and development, primarily in the Urban and Urban Maritime environments, where these uses are recognized for their economic benefit and social value. 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 9** contains a number of regulations on a variety of topics that contribute to protection and restoration of ecological functions, including **Section 9.5** (Docks, Piers, and Floats), **Section 9.10** (Shoreline Habitat and Natural Systems Enhancement Projects), and **Section 9.11** (Shoreline Stabilization Measures and Flood Protection Works). 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 *Shoreline Restoration Plan* (**Appendix B**) 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. The City is an active proponent for restoration along the City's shoreline waterbodies.

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 five 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 freshwater lakes, large associated wetlands, and City parks and open spaces through 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 Anacortes' shorelines**.