Mason County
Cumulative Impact Analysis

Draft - February 2017

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Chapter 1: INTRODUCTION

Mason County is updating its existing Shoreline Master Program to comply with the Washington State Shoreline Management Act (SMA or the Act) (Revised Code of Washington 90.58) and Washington Administrative Code (WAC) implementing rules (WAC 173-26 also called the state's Shoreline Master Program Guidelines). This report is an analysis of the cumulative impacts that may be expected to occur over time as the new Shoreline Master Program (SMP) is implemented. This report also addresses whether the SMP achieves no net loss of shoreline ecological functions.

ESA prepared the preliminary draft CIA for the County's use in reviewing the January 17, 2013 Draft SMP. Mason County Staff has since revised the preliminary draft to correct errors and to address the Planning Advisory Commissions' recommended changes to the draft SMP policies and regulations as well as the minor changes recommended for the Resource Ordinance to assure that it harmonizes with the SMP.

Section 1.1: Why did the County prepare this Report?

As part of this SMP Update effort, the County is required to evaluate the cumulative impacts of reasonably foreseeable future development to verify that the SMP's proposed policies and regulations for shoreline management are adequate to ensure "no net loss" of shoreline ecological functions. The determination of no net loss is required by WAC 173-26-186. The proposed Mason County SMP provides standards and procedures to evaluate individual uses or developments for their potential to impact shoreline resources on a case-by-case basis through the permitting process. The purpose of this report is to determine if impacts to shoreline ecological functions are likely to result from the aggregate of activities and developments in the shoreline that take place over time. This report is prepared as a requirement of the County's grant agreement with the state funding agency, the Washington Department of Ecology (SMA Grant No. G1100004). This analysis is not proposed for inclusion as regulatory code or as part of the Mason County Comprehensive Plan or the MCC development regulations, but may serve as a useful reference during SMP implementation.

The cumulative impacts to be addressed in this report are those expected to result from future development and uses within the SMA shoreline jurisdiction and regulated by the SMP (December 2016).

Section 1.2: What are the State Requirements?

According to the state SMP Guidelines (WAC 173-26-186), the County is required to evaluate and consider cumulative impacts of "reasonably foreseeable future development" on the shorelines of the state as follows:

"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 among development opportunities. Evaluation 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."

In addition, the guidelines (WAC 173-26-201) require evaluation of the effects caused by:

- Unregulated activities,
- Developments that are exempt from a shoreline Substantial Development Permit, and
- Incremental impacts of residential bulkheads, residential piers, and runoff from newly developed properties.

The guidelines also require that particular attention be paid to platting or subdividing property and installation of infrastructure that could establish a pattern for future shoreline development. This report contains a series of questions and answers designed to provide the required information.

Section 1.3: Why is this Analysis Required?

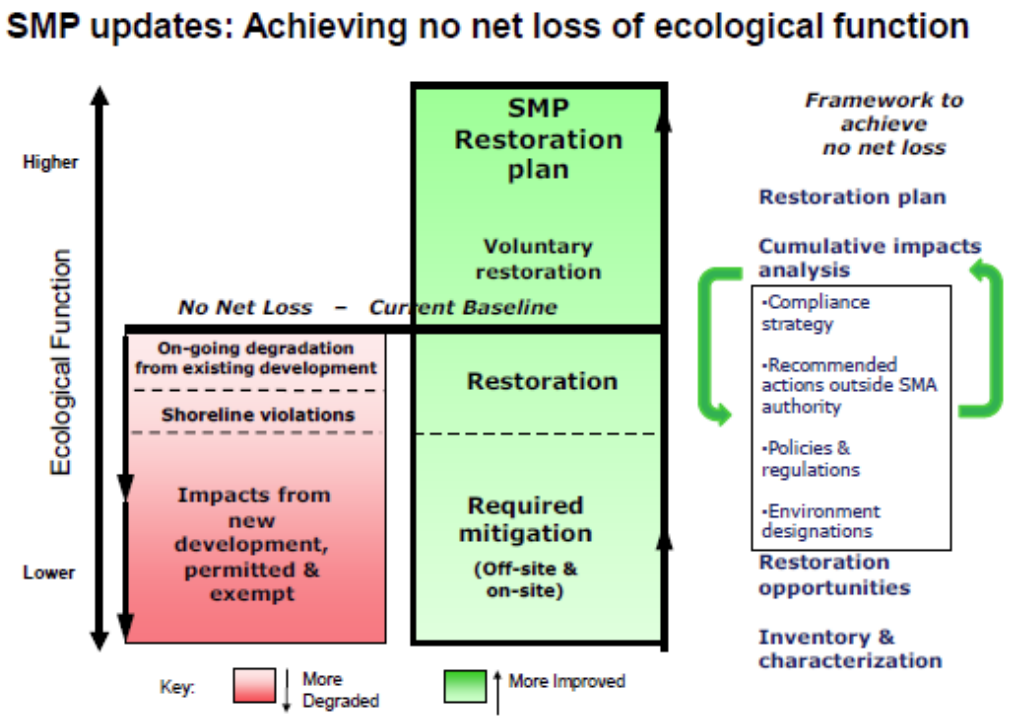
The analysis provides a planning level assessment of the potential cumulative impacts that can be expected to occur if the proposed Mason County SMP (dated September, 2015) is adopted and implemented as written. The assessment is limited to cumulative impacts of reasonably foreseeable future development in areas subject to SMA jurisdiction. Mason County's shorelines include approximately 697 linear miles, which are composed of 217 miles of marine shoreline, 330 miles of river shoreline, and 150 miles of lakeshore.

This analysis is focused on those allowed uses or developments that have the greatest potential for adverse impacts when considered in a long-range or aggregate manner. For example, commercial signs are regulated under the SMP but are not considered in this context based on their limited size and effect on shoreline functions. The discussion of "development exempt from shoreline permitting" is focused on those foreseeable activities listed in WAC 173-27-040

with the greatest potential for adverse cumulative impacts. Not all activities that may be exempt from Substantial Development Permits are discussed (e.g., watershed restoration plans and projects; hazardous material remediation, etc.). Additionally, exempt development activities are still subject to compliance with the SMP policies (e.g., to minimize impacts) and other regulations in place that protect shoreline resources (e.g., critical area regulations) as appropriate. The diagram below (Figure 1) from Ecology illustrates the concept of the framework for achieving "no net loss" of ecological functions with impacts from new development reducing shoreline functions below the current existing condition and mitigation plus restoration increasing functions.

According to the SMP Guidelines (WAC 173-26-201), the assessment of cumulative impacts occurs at both the **planning stage** (a programmatic effort when the SMP is being developed) and at the **permitting stage** or the time individual development proposals are reviewed (a site-specific effort once the SMP is adopted and implemented). The Guidelines suggest that impacts of "commonly occurring and planned development" be assessed at the planning stage "without reliance on an individualized cumulative impacts analysis." In contrast, developments that have un-anticipatable or uncommon impacts, which cannot be reasonably identified at the time of SMP development should be evaluated via the shoreline Substantial Development and Conditional Use Permit processes to ensure that all impacts are addressed and that there is no net loss of ecological function after mitigation.

Figure 1. Diagram from Ecology illustrating how the SMP achieves no net loss.



Source: Department of Ecology

The objective of the analysis is to demonstrate that commonly occurring shoreline uses and developments within the County will not result in a net loss of shoreline ecological functions compared to 'baseline' conditions. This assumes that impacts will occur, but that there are adequate measures in place to mitigate them such that the post development conditions are no worse overall than the pre-development conditions. For this planning level assessment, the baseline conditions are the conditions that are generally identified and described in the County's Final Draft Shoreline Inventory and Characterization Report (ESA et al., 2012).

The Mason County SMP includes standards and procedures for evaluating the effects of specific development actions on a case-by-case basis at the time individual shoreline development proposals are reviewed. These project-level analyses will allow site-scale factors to be included in the assessment of baseline conditions to supplement the inventory information available for the County as a whole. To achieve no net loss, the SMP requires each project to mitigate impacts by avoiding, then minimizing adverse effects, then replacing damaged resources through compensatory mitigation efforts. The SMP is the result of extensive review by the County's Citizen Advisory Committee, the Planning Advisory Commission in conjunction with participation by the general public, and the Board of County Commissioners.

Chapter 2: CURRENT CONDITIONS AND CIRCUMSTANCES

Section 2.1: What is the Shoreline Inventory and Characterization Report?

The Final Draft Shoreline Inventory and Characterization (SIC) report (dated October 2012) is a technical document that describes the existing conditions of shorelines of the state in Mason County. The report is a required first step in the SMP update process.

A total of 109 waterbodies in Mason County were identified and inventoried in the report as *shorelines of the state.* These include:

- marine waters (including both Hood Canal and South Puget Sound),
- 64 rivers and streams (with a mean average annual flow of 20 cubic feet per second or greater), and
- 44 lakes (over 20 acres in size).

A total of 709 linear miles of shoreline were identified within the County by the final SIC. However, after receiving comments on the shoreline environmental designations (SED), the Planning Advisory Commission recommended changing the criteria for the Commercial (previously Urban Commercial) SED, which required remapping the revised Shoreline Environmental Designations. Also, the number of stream miles were reduced to reflect stream flow data recently provided to the County. This revised map was created in August 2015 and resulted a total of 697 miles of shoreline along 110 waterbodies:

- Hood Canal and South Puget Sound
- 63 rivers and streams[1]
- 45 lakes[2]

In addition to studying the waterbodies themselves, adjacent lands were studied as well, which included lands extending landward of the waterbody for 200 feet, floodways and floodplain areas, river deltas, and wetlands considered to be associated with the shoreline. One of the important areas of the marine waterbodies is the "nearshore" environment which includes shallow marine waters, mudflats, tidal areas, and beaches.

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[1] Removed Winter Creek per data provided by GDRC.

[2] Goose Lake was added (found to be >20 acres). Also, Tenas Lake was added, but it was merged with Lilliwaup Swamp.

The inventory and characterization report describes existing conditions within the Mason County shorelines and provides a map folio based upon Geographic Information System (GIS) data. The report describes existing land uses, such as residential uses, parks, development and water-dependent industries. It also evaluates existing natural shoreline processes and functions, such as forested riparian areas, wetlands, wildlife habitat and fish present. The inventory report identifies areas suitable for restoration and additional public access. The report provided a foundation for revising the goals, policies, and regulations in the County's SMP. It helped the County make informed decisions about incorporating the communities' visions for the shorelines, accommodating growth, and addressing other shoreline policy objectives like promoting water-dependent uses. It also helped the County explore opportunities for conservation and restoration of natural areas. The Final draft SIC report, and its accompanying map folio with 27 maps, can be found on the County's web page at: http://www.co.mason.wa.us/community_dev/shoreline_master_program/.

Section 2.2: What were the Major Findings of the Report?

Some of the findings of the inventory report are summarized below:

CHARACTERISTIC	SUMMARY
LAND USE	
	Existing land uses in freshwater shoreline areas are mostly in residential uses and forestry. Vacant lands and agriculture land uses make up most of the remaining area. Residential land uses are concentrated around lakes and each house typically has an individual dock or pier. Existing land uses in the marine shoreline areas are mostly residential. Vacant and forestry land uses are also common. Docks and piers are scattered throughout the marine environment with private marinas concentrated along Hood Canal. The only major industrial area in the County is located on Oakland Bay in the City of Shelton.
WATER-DEPENDENT USES	
	Ports, log booming and storage, shipping, marinas, docks, piers, boating facilities, outfalls, and aquaculture are typically considered to be water-dependent uses. Water-dependent uses in Mason County include docks, piers, boat launches, marinas, commercial aquaculture, and bridges. Single family residential docks are the most common water-dependent use on the county's shorelines. Commercial aquaculture is an important and growing water-dependent industry.
PARKS AND PUBLIC ACCESS	
	Many of the shorelines within Mason County have public access. Marine shorelines are accessible through Washington State or County parks or through informal access to public tidelands and beaches from public roads. Most shoreline lakes, although fully developed with private residential homes, are accessible through a Washington Department of Fish and Wildlife boat launch. Public access is encouraged on public lands that lie within the shoreline jurisdiction.
FISH AND WILDLIFE HABITAT	
	County rivers and streams support numerous species of native salmon and trout, several of which are listed under the Endangered Species Act. Native shellfish beds and forage fish (i.e. sand lance, smelt and herring) are found in the nearshore areas of Hood Canal and South Puget Sound. Many other wildlife species, including marine mammals, shorebirds, and waterfowl, use Mason County shorelines as habitat. Eelgrass and kelp beds, mudflats, estuaries and bays are important habitats in the County. Wetlands provide valuable habitat and water quality benefits to most County shorelines.

CHARACTERISTIC	SUMMARY
WATER QUALITY	
	Water quality in Mason County is impaired or degraded. In South Puget Sound, water quality issues include toxic pollutants, elevated water temperatures, fecal coliform bacteria, nutrient loads, and low dissolved oxygen concentrations. In Hood Canal, the main water quality issues are low dissolved oxygen and high summer temperatures. Water quality issues for rivers and streams are sedimentation and high temperature. These issues are caused by stormwater runoff, timber harvest, culverts, and highways and railroads that cross shorelines. The increase in impervious surfaces, installation of septic systems, and human activities along the marine shoreline are all potential sources of water quality degradation. Shellfish closures result from increased nutrients, fecal coliform and corresponding algae blooms.
NEARSHORE FUNCTIONS AND COASTAL PROCESSES	
	The marine nearshore character varies considerably across Mason County. There are numerous types of shores along Hood Canal and South Puget Sound. Waves generated by wind are the dominant driver of coastal processes. Nearshore sediment supply is typically derived from eroding bluffs where sediment is transported down-drift by waves to form the varieties of shoreforms found in the County. These coastal processes dictate the many shoretypes of Hood Canal. South Puget Sound contains more sheltered, low-energy shores that form highly complex coast lines with many small bays and inlets. Erosion and sediment transport rates are very low in these environments. Numerous artificial shoreforms exist along the shores of Mason County. These shorelines no longer resemble or function like their historic types and have resulted in the degradation of coastal processes, particularly along the shores of Hood Canal. Modifications to the natural shoreline include bulkheads, riprap, and fill for bridges or structures. Fewer modifications and changes to nearshore processes have occurred along the shores of South Puget Sound.
SURFACE WATER AND GROUNDWATER	
	Mason County has a significant amount of natural surface water and groundwater resources. However, many of the rivers and creeks in Mason County fall below the Washington State minimum instream flow requirements during some months of the year. Certain streams have been closed to further diversions for some or all of the year. Tacoma Power operates Cushman Dam and has increased minimum flows through the dams to improve flow conditions for salmonid recovery in the North Fork Skokomish River.
RESTORATION	
	Restoration is currently underway in Mason County by a variety of organizations including the Squaxin Island Tribe, Skokomish Tribe, Mason Conservation District, Hood Canal Coordinating Council, Hood Canal Salmon Enhancement Group, South Puget Sound Salmon Enhancement Group, and Puget Sound Nearshore Ecosystem Restoration Project. Future opportunities for restoration are also included in the report. (Photo credit: Mason Conservation District website, 2011)

Section 2.3: What are Shoreline Ecological Functions?

According to WAC 173-26-186, the County is required to review and amend its SMP so that it uses a process that identifies, inventories, and ensures meaningful understanding of current and potential ecological functions provided by shorelines. Further, local master programs shall include policies and regulations designed to achieve "no net loss" of those shoreline ecological functions. As per WAC 173-26-201(3)(d)(i), shoreline ecological functions include the following:

- **Hydrologic functions**: Transport of water and sediment across the natural range of flow variability; attenuating flow energy in rivers; attenuating wave and tidal energy in marine waters; recruitment and transport of large woody debris and other organic material; removing excessive nutrients and toxic compounds.
- **Shoreline vegetation**: Maintaining temperature; removing excessive nutrients and toxic compounds, sediment removal and stabilization; attenuation of flow and wave energy; and provision of large woody debris and other organic matter.
- **Hyporheic functions**: Removing excessive nutrients and toxic compounds, water storage, support of vegetation, and sediment storage and maintenance of stream base flows.
- Habitat for native aquatic and shoreline-dependent birds, invertebrates, mammals; amphibians; and anadromous and resident native fish: Habitat functions may include, but are not limited to, space or conditions for reproduction; resting, hiding and migration; and food production and delivery.

Based upon information and data summarized in the Draft ICR, shorelines within Mason County provide important ecological functions. For example, approximately 45 percent of marine shorelines, 29 percent of river shorelines and 60 percent of lake shorelines are considered forested (GAP Land Cover Analysis, 2009)[3]. Shorelines in the County that provide the highest ecological functions and are considered high value are: 1) coastal feeder bluffs, 2) pocket estuaries, 3) eelgrass beds, 4) coastal inlets and river mouths, 5) estuarine wetlands, 6) high quality wetland complexes, 7) cold water inputs and springs critical to salmonid recovery, and 8) areas currently supporting priority habitats and species.

[3] These values exclude national forest lands.

Specific shorelines in the County noted for ecological functions include Hood Canal, the Hamma Hamma River, Skokomish River and tributaries, Totten Inlet, and tributaries in WRIA 22 which support salmonid habitat in the Lower Chehalis River basin, among others.

During the restoration planning phase of the SMP update, Coastal Geologic Services (CGS) identified marine shorelines that should be designated for high priority protection and preservation. Figure 2 in Appendix A displays the shoreline marine areas designated for high priority protection as determined by CGS. This analysis targets data compiled for the Puget Sound Nearshore Ecosystem Restoration Project (PSNERP), Puget Sound Partnership, and watershed characterization information from Ecology for marine areas within Mason County jurisdiction. High priority protection and preservation areas mapped in Hood Canal and South Puget Sound are concentrated on bluff-backed beaches, open coastal inlets, and barrier beaches.

Chapter 3: FUTURE DEVELOPMENT AND EFFECT ON SHORELINES

Section 3.1: What is the County's Shoreline Jurisdiction?

The definition of minimum shoreline jurisdiction is established by statute in RCW 90.58.030. "Shorelines of the state" means all of the water areas of the state, including reservoirs, and their associated shorelands, together with the lands underlying them which meet one of the following criteria:

- Tidal waters and wetlands associated with them;
- Rivers or streams downstream of a point where the mean annual flow is 20 cubic feet per second (cfs) or greater and the wetlands associated with those streams; and
- Lakes greater than 20 acres in size and wetlands associated with those lakes.

"Shorelines of Statewide Significance" in Mason County are defined as follows:

- Those areas of Puget Sound lying seaward from the line of extreme low tide;
- Marine waters of Hood Canal and adjacent shorelands;
- Downstream rivers where the mean annual flow is measured at 1,000 cfs or more and adjacent shorelands; and
- Lakes or reservoirs (whether natural or artificial) with a surface acreage of 1,000 acres or more measured at the ordinary high water mark and adjacent shorelands.

"Shorelands" or "shoreland areas" means those lands extending landward for two hundred feet in all directions as measured on a horizontal plane from the ordinary high water mark; floodways and contiguous floodplain areas landward two hundred feet from such floodways; and all wetlands and river deltas associated with the streams, lakes, and tidal waters which are subject to the provisions of this chapter; the same to be designated as to location by the Department of Ecology.

Any county or city may, during its SMP update process, expand its shoreline jurisdiction to include the 100 year floodplains and critical area buffers that extend out beyond the above defined jurisdiction. Although Mason County has opted to not expand its shoreline jurisdiction, doing so would not appreciably increase habitat protections because floodplains infrequently extend beyond the 200 feet from floodways, and critical area buffers are still protected by the Resource Ordinance's requirements such as mitigation sequencing.

Section 3.2: How Will Future Development be Managed along the County's Shorelines?

The types of future development occurring on County shorelines will vary depending on the Shoreline Environment Designation (SED) assigned to each shore segment once the SMP is adopted. The Mason County SMP assigned SEDs to shore segments based on three general factors:

- the existing land use pattern;
- the biological and physical character of the shoreline being considered for development; and
- the goals and aspirations of the community as expressed through the comprehensive plan.

Designations are applied to both the waterbodies themselves and adjacent shorelands. The following shoreline environment designations were developed with input from both the (JTAC and the CAC over a nine month period in 2011 through 2012). A set of criteria were developed through these meetings to describe each shoreline environment designation. After receiving public comment on the draft SED's, the Planning Advisory Commission recommended that the 'Urban Commercial' SED be modified to only include lands with a commercial zoning and lands already containing commercial development (see Section 17.50.030 of the Draft SMP for a complete description).

Areas designated **Natural** are relatively unaltered and provide high shoreline ecological functions and have one or more of the following qualities:

- Areas that are ecologically intact and perform irreplaceable ecological functions or ecosystem-wide processes;
- High value wetland complexes with important ecological functions that have generally intact buffers;
- High quality estuaries;
- High quality accretional spits;
- High quality bluff-backed beaches, barrier beach, barrier estuary, deltas;
- Feeder bluffs that have minimal or no existing development above or below the slope;
- Cold water inputs and springs that have been identified to be critical for salmonid habitats;
- Areas that are critical for the support of priority wildlife species (waterfowl concentrations, bald eagle habitat);

- Areas with which Federal or State endangered and threatened of wildlife have a primary association;
- Forested riparian areas predominantly composed of native vegetation with diverse plant communities, multiple canopy layers, and the presence of large woody debris available for recruitment to adjacent water bodies;
- Areas of particular scientific and educational interest; or
- Puget Sound Nearshore Estuary Restoration Program score of "least degraded."

Areas designated **Conservancy** are shorelines with one or more of the following qualities:

- Partially developed or relatively intact areas that include landslide or erosion hazard areas, feeder bluffs, wetlands, high quality riparian areas, or other critical areas;
- Areas that are currently supporting resource-based uses, such as forestry, agriculture, or aquaculture;
- Partially developed or relatively intact areas that include channel migration zones or extensive floodplains; or
- Areas designated as forestry lands per Comprehensive Plan designations that do not qualify as Natural shoreline environments.
- Currently supporting or can support low-intensity recreational activities (e.g., small campgrounds, unpaved trails);
- Currently supporting or can support low-intensity water-dependent uses;
- High recreational value or with unique historic or cultural resources; or
- Puget Sound Nearshore Estuary Restoration Program score of "less degraded."

Areas designated **Rural** are shorelines located outside urban growth areas (UGA), rural activity centers (RAC), and Hamlets that are developed or partially developed; characterized by large lot sizes; designated Rural Residential 10, Rural Residential 20, Rural Multi-family, In-holding Lands, or Agricultural Resource Lands; and have one or more of the following qualities:

- A mix of uses including agriculture, large lot residential, tree farms, and/or moderately intensive recreation (RV or tent campgrounds, paved trails, day-use parks);
- Developed or partially developed areas that include channel migration zones or floodplains; or
- Areas designated as agricultural lands per Comprehensive Plan designations.

Areas designated **Residential** are developed shorelines; characterized by small lot sizes; designated as Rural Residential 2.5, Rural Residential 5, UGA residential zones; and have one or more of the following:

- Areas that are predominantly developed with single-family or multifamily residential development;
- Areas planned and platted for residential development, but are not predominantly characterized by critical areas, floodplains and/or channel migration zones;
- Areas with a proliferation of docks/piers and structural armoring;
- Areas developed with or planned for highly intensive recreational uses (e.g., marinas, boat launches); or
- Puget Sound Nearshore Estuary Restoration Program nearshore degradation score of moderate to most degraded.

Areas designated **Commercial** are shorelines that do not qualify for a Natural or a Conservancy designation and that have one of the following qualities:

- Areas zoned commercial within an Urban Growth Area; or
- Areas zoned Rural Commercial or Rural Tourist; or
- Areas with commercial development.

Areas waterward of the ordinary high water mark are proposed to be designated **Aquatic**. The purpose of the aquatic environment is to protect, restore, and manage the unique characteristics and resources of the areas waterward of the ordinary high water mark. The JTAC and CAC considered the use of a dual (two) aquatic designation system to better protect high value in-water areas within the county. A map of high value aquatic areas was prepared based upon information provided by JTAC and CAC members; however, the CAC found that Mason County waters contained many potentially "sensitive" areas, such that most of the County saltwater would have been considered priority aquatic, thereby diminishing the importance of this designation. Therefore, after several meetings, it was decided to use a single in-water designation, which was in keeping with the WAC designation for "Aquatic." Nonetheless, the SMP includes more restrictive provisions on Hood Canal for docks and finfish net pens. See Figure 3 (Appendix A) for a map of high value aquatic areas

The SEDs are designed so that the uses allowed on each shore segment are appropriate considering the ecological condition and sensitivity of the land and water. As a result, the type and intensity of uses allowed in areas designated Natural and Conservancy are tightly controlled since these areas are the most sensitive to future development and the most vital to protect. For example, many of the high quality shorelines identified for priority protection due to tidal flow and sediment supply marine processes as shown on Figure 2 (Appendix A) are appropriately

designated as Conservancy or Natural areas in the proposed SED system. Also, impervious surfaces are limited to ten percent for new development within Natural and Conservancy areas. Existing and planned development patterns were considered as well to ensure the SEDs are compatible with existing and future land uses.

For each SED, the SMP identifies:

- Permitted uses and developments – Allowed uses and developments that are consistent with the SMA. Developments may require a shoreline Substantial Development Permit if they meet certain cost thresholds, interfere with normal public use of the water or are not specifically listed as exempt per WAC 173-27-040 and Section 17.50.080.B of the SMP. Permitted uses must be consistent with the requirements of the SMP and the Shoreline Management Act. Deviations from bulk, dimensional or performance standards may necessitate a Variance permit, which requires Ecology approval.
- Conditional uses – Uses that may be authorized provided they meet certain criteria. Conditional Use Permits also require Ecology approval.
- Prohibited uses and developments – These are uses and developments that are inconsistent with the SMA and which cannot be allowed through any permit or Variance.

Section 3.3: How Will the Proposed Shoreline Designations Protect the Shores?

The Mason County SMP proposes SEDs that reflect the shoreline ecology and are consistent with the SMP Guidelines (WAC 173-26-211). As such, these designations will help protect ecological functions and values and accommodate preferred and water-dependent shoreline uses. The proposed SEDs are different from the existing designation system in the following manner:

- **Simplification of the existing in-water designation system**. The existing designation system applies designations based on fathom depth (mean higher high tide to 1 fathom, 1 fathom to 10 fathom, and 10 fathoms or more). In-water areas are designated Natural, Conservancy, Urban Industrial, or Urban Commercial. The proposed designation system is to designate all areas waterward of the ordinary high water mark **Aquatic**. This approach is consistent with the Ecology Guidelines (WAC 173-26-211).
- **Limiting Residential SED to smaller lots and limiting Commercial SED to commercially used or zoned lots.** The existing Urban Residential designation is currently applied to a large area that includes even very rural parcels. To ensure consistency with Ecology Guidelines and allow for application of the designation to both urban and rural lands in the County, the Urban Residential designation is proposed to be renamed to Residential and would exclude Rural Residential 10 and Rural

Residential 20 zoning. The Commercial SED would only be applied to commercially zoned areas within UGAs, RACs and Hamlets and to areas with existing commercial development.

- **Consistent application of designations per findings of the Draft Shoreline Inventory and Characterization Report**. Areas of ecologically intact shoreline (i.e., natural and undisturbed), including those in the upper watershed, were revised to be consistent with their existing condition and considered Natural or Conservancy. Moderately developed areas within the urban growth areas were designated as Residential or Commercial.

The proposed SEDs reflect the County comprehensive plan designations that designate the vast majority of the County's shorelines for low intensity or resource management uses.

The following table summarizes the changes in designations from existing to proposed by total acres and percentage of shoreline acres:

Table 3-1. Existing and Proposed Designations for Mason County Shorelines

Shoreline Environment Designations	Existing Designations		Proposed Designations	
	Acres[1]	Percentage of Total[2]	Acres[1]	Percentage of Total[2]
Natural	772	5%	3,963	15.4%
Conservancy	7,206	43%	16,166	62.8%
Rural	3,616	22%	943	3.6%
Urban Residential (renamed to Residential)	4,882	29%	4,608	17.9%
Urban Industrial (no longer a proposed designation)	116	1%	0	0%
Urban Commercial (renamed to Commercial)	72	0.4%	71	0.3%
Total	*16,664*	*100%*	*25,751*	*100%*

[1] The waterbody is not included in the acreage values. These reflect only shorelands or upland areas. All water areas below the ordinary high water mark are proposed to be designated Aquatic.

[2] Calculated by taking the acres in one designation, dividing it by the total acres in shoreline jurisdiction and multiplying by 100 to get the percentage value.

The proposed designations apply to more acres of land than the existing designations because additional rivers and lakes have been identified as shorelines of the state and the beginning point in which a stream is considered a shoreline of the state has been moved upstream, mostly in areas designated as National Forest Lands. All streams located within the National Forest Lands are proposed to be designated Conservancy, which is why there is an increase as shown in Table 3-1. The Natural designation is proposed to increase as well consistent with the findings of the Shoreline Inventory and Characterization report of ecologically intact shorelines. The Rural designation is proposed to decrease consistent with underlying zoning designations and lot patterns. The number of acres designated Commercial will be minimally decreased, and the acres designated Residential will be decreased.

Section 3.4: Where Will Foreseeable Future Development Occur?

There is development potential associated with a relatively small percentage of the properties in the shoreline. However, vacant properties and subdividable properties that are unencumbered by critical areas or their buffers have the most potential to cause impacts to shoreline ecological functions.

Redevelopment of existing residential properties typically involves construction of a larger house and may increase impacts but structures within existing buffers are constrained by SMP regulations and must mitigate for any new impacts. Addition of docks or piers associated with residential, commercial or recreational development could also cause impacts but the SMP includes bulk, dimensional and design standards to minimize impacts and requires mitigation sequencing for all proposals and includes specific prohibitions in areas of high ecological sensitivity (e.g. Hood Canal). See Section 4.2 for more information.

Commercial and industrial redevelopment would likely result in larger structures and increased impervious surfaces. Redevelopment may also involve vegetation removal. However, there are very few areas of existing commercial or industrial land in Mason County's shoreline jurisdiction (See Table 3.2).

Tax exempt lands have the potential to redevelop (such as public school expansions) or convert from forested lands to other types of development. Lands that have been set-aside as open space are not likely to develop in the future. Development on the majority of public lands is anticipated to be minimal, largely due to their intended purpose being reserved for open space or public recreation uses. Future development may increase recreational opportunities on those lands; while other properties may be developed for transportation and utility facilities. Restoration activities may occur on public lands. State-owned lands that are in forestry use

would likely remain in forestry. Roads and stream crossings to support forestry use may be built on such lands.

There are 25,755 shoreland acres in the shoreline jurisdiction, excluding areas with a high landslide hazard rating (per DNR) and wetlands.

A GIS query and analysis was conducted, using the Mason County Assessor's database, to identify "Shoreline_Parcels_Without_Critical_Areas". This database was divided into categories related to the nature and extent of existing development (Vacant, Residential; Commercial/Industrial; Recreation) and the probability of future development (Ineligible). Ineligible parcels using land use codes provided by the Assessor's office.

Lands were deemed "Ineligible" if they had a relatively high likelihood of being unable to be developed, based upon the select Assessor codes. It is possible that some, limited development could occur on some of the lands. For example, a single family residence could be constructed on an Inholding land or an existing roadway could be widened. The density for residential development on Inholding lands is 1 DU/20 acres. Given that such development would be located on lands with a Conservancy or Natural SED and need to meet a buffer/setback of 165 feet, impacts would be probably be negligible.

It is unlikely that new public transportation facilities will be constructed within shoreline jurisdiction. Expansion might occur if necessary to preserve existing facilities or improve safety. No expansion is anticipated to increase capacity. Public transportation projects will be consistent with policies and regulations and are expected to result in no net loss. Rather, restoration projects associated with the public transportation system are expected to result in environmental gains when compared to existing conditions.

Lands currently designated Long Term Commercial Forestry have potential for re-classification as R-5 zoning to allow for residential development. This could affect lands surrounding shoreline lakes where existing residential development may encourage such a zoning change.

> **"Ineligible":** (82) Resource-Agriculture activities; (41) Transportation Railroad; (45)Transportation Highway; (46)Transportation Auto Parking; (48) Transportation Utilities; (81) Resource Agriculture; (83) Resource Agriculture Current Use; (84) Resource Fishing; (85) Resource Mining; (88) designated forest lands; (76)Recreational Parks; (93) Undeveloped water areas; (92) Undeveloped Commercial Forest; (1000) Indian Reservation; (8900) IH lands.20 acre; (8990) Long Term Commercial Forest; (67) Service governmental and (68) Service Educational; (2020) Long Term Commercial Forest; (2023) Olympic National Forest; (2030-2033) Long Term Commercial Forest; (2036-2037) Long Term Commercial Forest; (2038) Water; (2080) Water; (2081) Long Term Commercial Forest; (2082) Water; (2083) Long Term Commercial Forest; (2086) Water; (2087)) Long Term Commercial Forest; (71) Recreational Cultural; (72) Recreational- Public Assembly; (73) Recreation Amusements; (74)Recreational – Recent Activities; (75) Recreation- Resorts and Group Camp

"Vacant": (91) Undeveloped Land; (94) Undeveloped Open Space; (95) Undeveloped Timberland; (99) Undeveloped Other

"Residential": (11) Residential Single Family; (12) Residential 2-4 Units; (13) Residential Multi-units; (14) Residential Condo; (16) Residential Hotels/Motels; (18) Residential All Other; (19) Residential Vacation and Cabin; (2009-2019) RR5-Lake Cushman Subdivision; (2021-2022) RR5-Lake Cushman Subdivision; (2025-2029) RR5-Lake Cushman Subdivision; (2034) RR5-Lake Cushman Subdivision; (2039) RR5-Lake Cushman Subdivision; (2066)) RR5-Lake Cushman Subdivision; (2084) RR5-Lake Cushman Subdivision

"Commercial/Industrial": (21) Commercial Food; (24) Commercial Lumber and Wood; (25) Commercial Furniture and Fixtures; (34) Commercial Fabricated Metal Products; (51) Trade - Wholesale Trade; (52) Trade - Retail Trade; (53) Trade General Merchandise; (54) Trade-Food; (55) Trade Auto; (56) Trade Apparel; (57) Trade Furniture and Equipment; (58) Trade- Eating and Drinking; (59) Trade-Other; (61) Services/Finance/Insurance/Real Estate; (62) Services – Personal; (63) Services – Business; (64) Services- Repair; (69) Services- Misc

Table 3-2. Available Lands - Mason County

Property Type	Acres	Percentage of Total
Ineligible	20,864	81%
Vacant Properties	2,138	8%
Dividable Properties	559	2%
Non-dividable Properties	1,579	6%
Developed Residential	2,655	11%
Fully Developed	2,576	10%
Underdeveloped	47	<1%
Developed Commercial and Industrial	51	<1%
Fully Developed	21	<1%
Underdeveloped	29	<1%
Total	*25,755*	*100%*

As Table 3-2 shows, a relatively small proportion of the shoreline jurisdiction is likely to develop. Of the total shoreland area, 81 percent (20,864 acres) is considered ineligible for development. The remaining shoreland area is considered vacant (8 percent or 2,138 acres) or in residential use (11 percent or 2,655 acres). A smaller percentage of shoreland acreage is in

commercial or industrial use. Dividable vacant lands are located mainly along South Puget Sound in isolated pockets. The remaining non-dividable vacant parcels are found along Hood Canal, South Puget Sound, the Skokomish River, Harstine Island, the Satsop River, and Oakland Bay. The majority of the underdeveloped residential land lies in one parcel on the southeastern shore of Mason Lake, with the remaining acreage in three parcels along the South Puget Sound. Most of the underdeveloped commercial and industrial properties lie within the Lilliwaup, Hoodsport, Belfair, Union, and Southeast Harstine Island areas.

Development on vacant parcels can be expected to occur over time depending on demand for housing, job availability, and other factors. The Draft SMP contains a full range of policy and regulatory provisions to protect ecological functions as shorelines develop. These provisions include buffer and setback requirements, restrictions on shoreline armoring and overwater structures, and other measures as described in this chapter. As required by Ecology Guidelines, all development, including developments exempt from the requirement to obtain a shoreline Substantial Development Permit must comply with these provisions except when specifically exempted by statute. Most development exempt from the requirement to obtain a shoreline Substantial Development Permit must still obtain letters of exemptions from the County which can include conditions to ensure consistency with SMP standards. The County may choose to require or not require a Shoreline Exemption for proposals that do not need a U.S. Army Corps of Engineers section 10 permit under the Rivers and Harbors Act of 1899 or a section 404 permit under the Federal Water Pollution Control Act of 1972 (WAC 173-27-050), such as residential development.

In the SMP, a Shoreline Exemption is now required in place of a Mason Environmental Permit for all activities, such as clearing and grading, within buffers regulated by the Resource Ordinance shoreline jurisdiction that would have otherwise required a Mason Environmental Permit per the Resource Ordinance. This assures that activities that do not meet the definition of shoreline development, such as clearing trees or clearing other native vegetation in a regulated buffer, are still reviewed to the SMP (and Resource Ordinance) standards even though a Mason Environmental Permit can no longer be required in shoreline jurisdiction. Regulating exempt developments and non-developments in this manner ensures consistent application of SMP standards.

Section 3.5: What Effect Will Land Subdivision Have on the Shoreline

It is difficult to predict how many existing parcels may be subdivided but estimates and past trends suggest that subdivision of land is not expected to create large numbers of new parcels within shoreline jurisdiction. Subdividable lands include the dividable vacant lands, underdeveloped residential lands, and underdeveloped commercial and industrial lands identified

in Section 3.3. Subdividable lands comprise approximately 2.5% of shoreline acreage. Table 3-3 shows acreage information for just those lands.

Table 3-3. Subdividable Lands Acreage

Property Type	Acres
Dividable Vacant Properties	559
Underdeveloped Residential	47
Underdeveloped Commercial and Industrial	29
Total	*635*

Section 3.6: How does Future Development Typically Affect Shorelines?

Shoreline development can cause a number of adverse effects on shoreline ecological resources. Without adequate planning and mitigation, development in the shoreline may result in impacts such as the following:

- Removal of forested riparian vegetation which negatively affects habitat and riparian functions;
- Hardening of shorelines through construction of bulkheads or rip-rap armoring which eliminates natural beaches, increases wave energy and negatively affects the intertidal zone;
- Construction of jetties, groins and breakwaters which disrupt natural beach formation and shore drift and impacting the intertidal zone;
- Construction of over-water structures which can shade aquatic environments, disrupt forage fish spawning areas, and negatively affect salmon habitat by removing forage areas (i.e. native eelgrass).
- Fill within floodplains or channel migration zones of large rivers resulting in flooding of downstream structures, disruption of flood flows, and avoidable damage to public health and safety.

The Shoreline Master Program (SMP) Handbook prepared by Ecology (Revised November 2012) describes the effects of unmanaged development on shorelines in the State of Washington (Publication No. 11-06-010). For example, Chapter 11 of the SMP Handbook describes the values of vegetation conservation, buffers and setbacks for protection of native vegetation within the shoreline, as documented by the most current scientific and technical information available.

Vegetation helps to stabilize soils, filter pollutants and fine sediments, and contribute to improved water quality. Trees and shrubs provide habitat for many species and food sources for aquatic species as well. Stable banks and slopes reduce the occurrence of landslides and erosion, thereby reducing damage to structures and threats to life safety. Often, vegetated areas adjacent to water bodies are referred to as "shoreline buffers" and are established to protect the ecological functions of the shoreline and help to reduce the impacts of land uses on the waterbody.

Buffers provide a transition between the aquatic and upland areas. The shoreline vegetation conservation section [WAC 173-26-221(5)] defines vegetation conservation as "activities to protect and restore vegetation along or near marine and freshwater shorelines that contribute to the ecological functions of shoreline areas." The benefits of buffers are discussed beginning on page 11 of Chapter 11 in the SMP Handbook:

The ecological benefits of buffers are discussed extensively in the following documents, which are briefly reviewed below. The first three documents were developed by the Aquatic Habitat Guidelines program, a partnership of state agencies, which conducted extensive reviews of the scientific literature for these documents. Ecology has participated in the development of the Aquatic Habitat Guidelines documents. The fourth document in the list was developed by the Washington Department of Fish and Wildlife.

- Protection of Marine Riparian Functions in Puget Sound, Washington, 2009.
- Protecting Nearshore Habitat and Functions in Puget Sound, 2007, revised 2010.
- White Paper - Ecological Issues in Floodplains and Riparian Corridors, 2001.
- Management Recommendations for Washington's Priority Habitats: Riparian, 1997.

In most cases adverse effects from development in the shoreline can be managed or offset through careful planning, compliance with appropriate regulations, use of best management practices and low impact development techniques, and effective compensatory mitigation measures. The SMP employs all of these tools to prevent cumulative adverse impacts on shoreline functions.

Chapter 4: PROTECTIVE PROVISIONS OF THE COUNTY'S SMP

Section 4.1: How are Critical Areas Protected?

The Mason County SMP integrates the County's Resource Ordinance, which includes regulations to protect wetlands, fish and wildlife habitat conservation areas, landslide hazard areas, and other critical areas[4]. These regulations were developed over an 8 year period. They were subject to extensive judicial review and were found compliant with the Growth Management Act requirement to include "best available science." Use of the County's Resource Ordinance provides the foundation for achieving no net loss of critical area functions in the County's shorelines. The Resource Ordinance is being revised concurrent with the SMP update to assure that they harmonize to protect critical areas. Staff has provided several recommended revisions to the Resource Ordinance in order to resolve the inconsistencies and vagueness that they have found to exist while implementing the regulations over the past several years. Careful attention was paid to assuring that the recommended revisions to the Resource Ordinance do not reduce protection of critical area habitat functions. Rather, the improved formatting and language will serve to improve protection of such habitats.

The SMP will adopt the Resource Ordinance [Mason County Code (MCC) 8.52; Ordinance #77-93, as amended] by reference [see Section 17.50.055(B)]. The Resource Ordinance establishes buffer standards for wetlands, landslide hazard areas and fish and wildlife habitat conservation areas (FWHCA). If buffers for critical areas are contiguous or overlapping, the buffers and setbacks that are the most protective of shoreline ecological resources are applied. A through C below summarize critical area regulations based on the Resource Ordinance as modified by the SMP update.

A. Fish & Wildlife Habitat Conservation Areas

Draft Resource Ordinance Code Section	Ecological Impacts Addressed
MCC 8.52.170 Appendix B: Common Line Mitigation Manual	Riparian zones Fish and wildlife habitat Water quality

[4]Mason County Code 8.52, as amended.

The Resource Ordinance and the SMP establish minimum vegetated buffers and structural setbacks required along rivers, lakes, and saltwater shorelines. FWHCA buffers range from 50 feet to 150 feet depending on the environment designation, or out to the channel migration zone, whichever is larger. The buffer extends landward in all horizontal directions from the edge of the ordinary high water mark of the shorelines.

In 2011, Ecology provided a map of the Channel Migration Zones in Mason County, which included the 2009 Geomorphic Skokomish River report. The Resource Ordinance has been revised to specify that in order for development activities to occur in the CMZ, a report prepared by a qualified professional must be submitted demonstrating that it is unlikely that the channel will migrate to the proposed site over the next 75 years or a report demonstrating that the proposed development would not result in interference with the process of channel migration, cause significant adverse impacts to property or public improvements, and/or result in a net loss of shoreline ecological functions within the rivers and streams.

The following table shows the proposed changes:

Table 4-1. Comparison of Existing and Draft Habitat Buffers and Setbacks.

Minimum Fish & Wildlife Habitat Conservation Area vegetated buffer/structural setback (**bold** = change)						
	Existing (Resource Ordinance)	Draft Resource Ordinance and Draft SMP				
		Commercial	Residential	Rural	Conser-vancy	Natural
Streams	150'/165'	150'/165'	150'/165'	150'/165'	150'/165'	150'/165'
Saltwater	100'/100' (except conservancy had a 115' setback)	**50'/65'** *decrease*	100'/**115'** *slight increase*	100'/**115'** *slight increase*	**150'/165'** *increase*	**150'/165'** *increase*
Lakes	100'/100' (except conservancy had a 115' setback)	100'/**115'** *slight increase*	100'/**115'** *slight increase*	100'/**115'** *slight increase*	100'/115'	100'/**115'** *slight increase*

FWHCA buffers are increased from 100 feet to 150 feet on saltwater shorelines designated Conservancy and Natural and decreased from 100 feet to 50 feet on shorelines designated Commercial in the Draft SMP (see Table 17.50.055-A in Draft SMP). Also, the SMP and the Resource Ordinance both require a 15-foot building setback from the landward edge of

"shoreline buffers" in all shoreline environment designations while, previously, the Resource Ordinance did not require a building setback for marine and lake shorelines except for those designated Conservancy.

In general, buffers must be maintained in a predominately natural, undisturbed and vegetated condition. When clearing, grading, construction or other buffer altering activities occur within a buffer, mitigation sequencing (avoid, then minimize and mitigate) is required, as detailed in a Habitat Management Plan prepared by a habitat biologist.

Structures must be set back far enough to be outside of a Channel Migration Zone (where applicable) or to the total of the minimum required buffer plus 15 feet, whichever is greater. A Variance is required in order to construct new homes, garages, and other major new development where the minimum setback cannot be met. However, there is an exception made for 'infill' single family development on lakes and marine shorelines that reduces the setback to a 'common line' or average setback, or to 35 feet whichever is greater.

This concept is carried over from the existing Resource Ordinance, with an important detail added. Previously, the buffer was reduced down along with the reduced 'common line' setback, and there was a vague requirement to enhance the remaining buffer. Now, the buffer remains the same minimum width, thus the proposed development at the common line is now considered *within* the buffer, and specific mitigation is required, as detailed in a Common Line Mitigation Manual (Appendix B to the draft Resource Ordinance).

Therefore, the existing requirement to enhance the buffer when utilizing the 'common line' or 'average' setback provision is now more logical because the proposed development is located within the regulated habitat buffer and because there is a detailed manual that outlines the required mitigation ratios. Not only does this resolve the problem with vagueness that prevented useful implementation of the language requiring enhancement, it also discourages larger development envelopes, because larger envelopes require more mitigation.

To accommodate uses and developments that require a location on the water or near the water's edge, some uses/developments may be permitted or conditionally allowed within the shoreline buffer/setback without a Variance. In order to be approved, the amount and extent of buffer modification must be the minimum necessary and a Habitat Management Plan (HMP) is required that identifies how potential impacts of developing in the FWHCA buffer will be avoided or mitigated. Examples of such allowed activities include:

- trails, water-dependent recreational development, and viewing platforms;
- habitat enhancement projects;

- piers, docks, floats, boat ramp, boat lifts, stairways, stair-towers;
- bank stabilization;
- beach access structures;
- transportation structures and stream crossings; and
- utilities.

There are a few activities that are allowed within a buffer without a Habitat Management Plan:

- Tree removal to maintain view corridors. Under this provision, no more than ten percent of the shrubs and ten percent of trees in the buffer less than six inches in diameter at breast height may be cut without specific authorization from Mason County. View corridor improvement actions which include the cutting of more than 10 percent of shrubs, cutting more than 10 percent of trees less than 6 inches diameter, or cutting any native trees larger than six inches in diameter at breast height will require a HMP;
- Danger trees cutting provided mitigation (but not an HMP) is provided (e.g., new tree plantings, leaving felled tree in critical area or buffer); and
- Repair/maintenance of existing, legally established structures and landscaped areas.

B. Wetlands

Draft SMP Code Section	Draft Resource Ordinance Code Section	Ecological Impacts Addressed
MCC 17.50.055(B)	MCC 8.52.110	Water quality Habitat Shoreline vegetation Hydrology (wetlands support stream base flows)

Wetland buffers range from 25 feet to 250 feet depending on the category, land use impact (high, moderate, and low), habitat score, water quality score and wetland characteristics (e.g., bog, forested, estuarine). Structures must be set back from the wetland a minimum distance of the buffer plus an additional 15 feet.

Delineations must adhere to the current approved federal wetland delineation manual and applicable regional supplement. Wetland buffers, mitigation ratios, and monitoring requirements are generally consistent with Ecology recommendations.

Wetlands and their buffers must be maintained in their natural condition. The Resource Ordinance allows the following activities within certain portions of wetland buffers with County review but without mitigation:

- Stormwater management facilities to allow a reasonable use of the property. Encroachment into the buffer shall be the minimum necessary and will be permitted only within the outer twenty-five (25) feet or outer twenty-five percent (25%) of the buffer, whichever is more restrictive.
- Passive activities (recreational trails and tot lots) within the outer twenty-five percent (25%) of the buffer.
- Commercial timber cutting when limited to the outer twenty-five percent (25%) of Category I and II wetland buffers and fifty percent (50%) of Category III and IV wetland buffers. No more than thirty percent (30%) of the merchantable trees may be harvested in this area on a one-time-only basis as associated with a land use conversion application. The thirty percent (30%) harvest must be representative and maintain an intact forest community character. The percentage and species distribution of all trees must be consistent before and after the selective timber harvest.

Wetland or their buffers may be altered provided mitigation sequencing is implemented and restoration, creation or enhancement is provided in order to offset the impacts. Mitigation for buffers shall be on a minimum 1:1 ratio.

Wetland buffers may be ‘averaged’ or they may be ‘reduced’ for land uses with high-intensity impacts (e.g., commercial, industrial) provided specific measures are implemented to minimize impacts (e.g., route untreated runoff away from wetland) and the buffer is not reduced below 100 feet for wetlands that have a habitat score of 20 or more points.

C. Landslide Hazard Areas

Draft SMP Code Section	Draft Resource Ordinance Code Section	Ecological Impacts Addressed
MCC 17.50.055(B)	MCC 8.52.140	Sediment transport Net shore drift Shoreline vegetation and

		habitat

A 50 foot buffer of undisturbed, natural vegetation is required around Landslide Hazard Areas, except that Landslide Hazard Areas or their buffers may be cleared or developed for the purpose of constructing a single family residence on a lot existing or vested by 1996. Such development must be consistent with the recommendations contained in a requisite Geotechnical Report and a Habitat Management Plan with findings that landslide hazards and impacts to anadromous fish or their habitat or to FWHCAs are avoided or mitigated. Furthermore, reductions must not result in an increased risk to people or property or impacts to shoreline ecological processes. There are also two additional requirements for development proposed within shoreline jurisdiction:

- The author of the geotechnical report must make an assertion that the proposed development is set back sufficiently to ensure that new shoreline stabilization or replacement is unlikely to be necessary during the life of the structure; and
- If shoreline stabilization is proposed, the author of the report must assess of the need to prevent potential damage to a primary structure or to protect public health and welfare. Hard armoring is only an option when the report confirms that there is a significant possibility that an existing primary structure will be damaged within three (3) years as a result of shoreline erosion in the absence of such hard armoring measures, or where waiting until the need is that immediate would foreclose the opportunity to use measures that avoid impacts on ecological functions or the opportunity to protect public health or welfare. Additionally, when the stabilization is proposed in areas that provide sediment to marine beaches mitigation measures shall be provided to avoid and, if that is not possible, to minimize adverse impacts to sediment conveyance systems.

The Resource Ordinance allows the following activities on Landslide Hazard Areas or their buffers without a Geotechnical Report or a Habitat Management Plan:

- Removal of ‘danger trees.’ Removal of trees in a concentrated area must be accompanied by replacement by deep rooting native shrubs or vegetation;
- Selected removal for viewing purposes of trees less than 6 inches dbh. Less than 2 percent of the total number of trees of that size or larger in the hazard area can be removed. Removal of trees in a concentrated area must be accompanied by replacement by deep rooting native shrubs or vegetation;
- Trimming or pruning of existing trees and vegetation.

Section 4.2: How Do 'Use and Modification' Regulations Protect Ecological Functions?

As described in Chapter 3, reasonably foreseeable development within Mason County shorelines is anticipated to be predominately residential development on vacant lands and redevelopment of residential properties. Residential development would likely involve new residential construction, piers, docks or floats, shoreline armoring, and vegetation clearing. The Mason County SMP establishes regulations that address the residential use as well as its associated shoreline modifications and construction activities. A through C summarize the use and modification regulations established in the SMP and the ecological impacts that would be addressed.

A. Residential Development

Draft SMP Code Section	Draft Resource Ordinance Code Section	Ecological Impacts Addressed
MCC 17.50.055(B) Table 17.50.040-A MCC 17.50.065(K)	MCC 8.52.170 - Appendix B: Common Line Mitigation Manual	Riparian zones Shoreline vegetation Water quality Saltwater and freshwater habitats Sediment input and movement, water movement and organic input

Use restrictions: Residential development is prohibited waterward of the OHWM (overwater). New floating homes are also prohibited. Existing overwater residential development and existing floating homes can be rebuilt or replaced in situ provided there is no increase in size. Residential development is also prohibited within floodways. Residential development is allowed in all upland shoreline environment designations except that duplexes and multi-family residences are prohibited in the Rural, Conservancy, and Natural designations, and accessory dwelling units are prohibited in the Natural designation.

Replacement structures: The Existing Structures subsection of the draft SMP's General Regulations allows for structures that do not meet the minimum shoreline setbacks but were legally established, to be replaced within their footprints without a Variance or a Habitat Management Plan. The County has managed legal, nonconforming structures in this manner for over two decades. The elimination of the variance process and HMP

requirement are not expected to have measurable impacts. To qualify for this allowance, the structure is required to be rebuilt in the identical footprint. Replacement structures must meet current health codes, manage stormwater and conform to current building codes. As such, they are essentially an upgraded residential structure with no change of surface area. Impacts to shoreline ecological functions from such constrained development are not foreseeable.

The draft SMP permits the moving of, or changing shape of, a nonconforming residential footprint to a location that also does not conform to the minimum shoreline setback, provided it increases its conformity with zoning (property line) or shoreline setbacks and provided a Habitat Management Plan is submitted to address restoring the abandoned footprint and mitigating for the new footprint. This should result in a improved habitat buffer, due to the mitigation and due to the fact that some of these will be located a bit farther from the shoreline than the previous footprint.

In addition, the draft SMP allows for the replacement residence in the legal, nonconforming footprint to be expanded vertically, up to 35 feet, without a Variance or HMP. Such expansions have been authorized in Mason County for decades (through the variance process) and are presumed to have minimal effects on shoreline ecological function. While vertical expansion could result in an increased use of the shoreline, new construction in this scenario is subject to upgraded standards inherent in current building and health codes related to construction materials, stormwater management, septic adequacy, etc., thereby minimizing potential new environmental effects.

Subdivision regulations: New residential development and subdivisions must be designed in a manner that minimizes the need for future shoreline stabilization. Land divisions must be designed so that improvements and construction avoid FWHCA, wetlands and their buffers, provided that water or wetland crossings or encroachments may be permitted for roads and utilities.

Minimum lot width standards are established by shoreline environment designation: Lot widths must be a minimum of 50 feet in Commercial and Residential designations, 100 feet in the Rural designation, and 200 feet in Conservancy and Natural designations. There is a provision that allows for smaller lot widths in Rural and Conservancy designations within performance subdivisions. The regulation states, “Performance subdivisions authorized under MCC 16.21 in Rural and Conservancy environment designations may include lot widths consistent with the underlying zoning, with a minimum of fifty feet.” Although this provision may increase the number of lots allowed on Rural and Conservancy shorelines, it is not expected to affect No Net Loss due to the following restrictions:

- Minimum buffers will remain.

- Performance subdivision regulations include that at least fifty percent of the buildable area of the property be set aside as permanent open space; and
- New subdivisions will be required to provide one community dock, when feasible, to serve the entire subdivision. Individual docks are not allowed.

Buffers and setbacks: New residential development must comply with the critical area buffers established in the SMP and the Resource Ordinance (see Chapter 4.1 above). However, there are various regulations in the Resource Ordinance that allow for modifications to standard buffers. For example, in Section 8.52.170.E.3.b, FWHCA setbacks for residential development are to be based on 'common lines' on saltwater and lake shorelines for lots created prior to December 5, 1996. 'Common line setbacks' may be larger or smaller than the standard critical area buffer based on the proximity of adjacent residences to the OHWM.

The ability to reduce setbacks to a 'common line' is an existing provision and is not expected to cause cumulative impacts for two reasons:

- It is most likely to be applied on small closely spaced lots in developed portions of the Residential environment where the marginal impacts would be minimal.
- Mitigation will be required for development within the standard 100 or 150 foot buffer. A new Common Line Mitigation Manual specifies the quantity, type, and other details for the required mitigation.

B. Overwater Structures (docks, unattached floats, buoys)

Draft SMP Code Section	Draft Resource Ordinance Code Section	Ecological Impacts Addressed
MCC 17.50.075(D)	MCC 8.52.170	Aquatic habitats

Docks are permitted, conditionally permitted, or prohibited based on shoreline environment designations and the associated waterbody (i.e., Hood Canal, South Puget Sound, lakes, or rivers). Docks are prohibited in rivers. They are also prohibited in lake or marine waterbodies when the upland designation is Natural.

Applicants for single-use residential docks must demonstrate that their neighbors are not willing to share an existing dock or develop shared moorage. Residential subdivisions are limited to having one community dock with a maximum of ten (10) slips. Docks and unattached floats must not be built to within 200 feet of the opposite shoreline of a semi-enclosed body of water, nor may they exceed fifteen (15) percent of the fetch.

A Habitat Management Plan must be submitted for docks proposed in marine or freshwater lakes with ESA listed species. A cumulative impact analysis report must be submitted by the applicant as part of a Conditional Use Permit, which is required for docks on freshwater shorelines with a Conservancy designation and for marine shorelines designated Residential or Conservancy.

Maximum dimensional and other standards for residential docks are established for lake and marine shorelines. Buoys must be located at sufficient depth as to prevent vessel grounding and so that anchor lines do not drag. No more than one buoy is permitted per waterfront lots unless greater need is demonstrated by the proponent and documented by the County.

C. Shoreline Stabilization

Draft SMP Code Section	Draft Resource Ordinance Code Section	Ecological Impacts Addressed
MCC 17.50.075(H)	MCC 8.52.140 MCC 8.52.170	Sediment input and movement, water movement and organic input.

New shoreline stabilization structures are allowed to protect the following when nonstructural measures, planting vegetation, or installing on-site drainage improvements, are not feasible or not sufficient:

- New and existing primary structures. Primary structures are structures or the only access associated with the principal use of the property that cannot feasibly be relocated. Primary structures may also include single family residential appurtenant structures that cannot feasibly be relocated;
- Ecological functions;
- Public health, safety and welfare (includes remediating hazardous substances pursuant to RCW 70.105);
- Essential public facilities;
- Public lands that facilitate shoreline access for substantial numbers of people;
- Unique natural and cultural resources;

Additional requirements for new shoreline stabilization include:

- Non-structural measures or bioengineering solutions must be used unless demonstrated to be infeasible through a shoreline geotechnical assessment.

- Hard armoring (such as rock, concrete, wood, or metal retaining walls and revetments) are only permitted when the shoreline geotechnical assessment demonstrates that there is a significant possibility that a primary structure will be damaged within three (3) years as a result of shoreline erosion in the absence of such hard armoring measures, or where waiting until the need is that immediate would foreclose the opportunity to use measures that avoid impacts on ecological functions or the opportunity to protect public health or welfare.
- A Habitat Management Plan must demonstrate that there will be no net loss of shoreline ecological functions.
- Shoreline stabilization measures must be limited to the minimum necessary.
- Must be located at or above the OHWM unless there is a demonstrated need based on safety or to protect or restore shoreline functions.
- Must be located landward of stream channel to allow for point bars, aquatic habitats. Prohibited on estuarine shores, point and channel bars, in channel migration zones unless the structure is necessary to protect public, health safety and welfare.
- Stabilization on feeder bluffs must avoid and, if that is not possible, to minimize then mitigate for adverse impacts to sediment conveyance systems.
- Repair and replacement of existing shoreline stabilization structures is only allowed when there is a demonstrated need to protect principal structures from erosion caused by currents or waves.
- Replacement of a failed bulkhead is permitted in the same location and dimension if it is commenced within five (5) years of failure.
- Replacement bulkheads must not encroach waterward of the OHWM unless it is the only feasible way to address overriding safety or environmental concerns (as documented in a Geotechnical Assessment) and mitigation is provided.

The shoreline stabilization chapter mirrors Ecology's Guidelines. The County could choose to add language to the SMP or Resource Ordinance that would require analysis of feasible options for replacing existing hard armoring with a softer stabilization and by requiring some vegetation enhancement. However, the draft SMP does encourage replacing hard armoring with soft measures by providing the incentive that the Planning Department permit fees are waived in those circumstances.

D. Vegetation Conservation

Draft SMP Code	Draft Resource Ordinance	Ecological Impacts

Section	Code Section	Addressed
17.50.055(D)	MCC 8.52.110 MCC 8.52.140 MCC 8.52.170	Marine and river riparian zones

The focus of these provisions is to limit vegetation clearing to the minimum necessary to accommodate approved shoreline development. This regulation applies to development inside and outside of critical area buffers. While the majority of vegetation conservation is achieved through the protections inherent in the Resource Ordinance buffers for lakes, saltwater, and streams, additional vegetation conservation occurs during protection of identified priorities habitats and species.

E. Buffer and Dimensional Standards for Shoreline Development

Draft SMP Code Section	Draft Resource Ordinance Code Section	Ecological Impacts Addressed
Table17.50.055-A	MCC 8.52.170	Riparian zones Shoreline vegetation Water quality Saltwater and freshwater habitats

The SMP includes a table identifying minimum buffers for FWHCAs (streams, saltwater, and lakes), minimum building setbacks, and minimum lot width for each shoreline environment designation.

See Section 4.1 above for the discussions on FWHCA and landslide hazard area buffers.

Chapter 5: OTHER EXISTING PROGRAMS

Section 5.1: What Other County Programs Protect Shorelines?

There are a variety of regulatory programs, plans, and policies that work in concert with the County's SMP to manage shoreline resources and regulate development near the shoreline. Various sections of the Mason County Code (MCC) are relevant to shoreline management.

MCC Chapter 6.76 On-site Sewage Regulations: The purpose of Chapter 6.76 is to assure protection of public health by: minimizing the public health effects of on-site sewage systems on surface water and groundwater; establishing design, installation, and management requirements for on-site sewage systems to accommodate effective treatment and disposal of sewage on a long-term basis; and enhancing protection of environmentally sensitive areas within Mason County.

MCC Title 8 Environmental Policy*:* Most projects requiring a shoreline permit must also demonstrate compliance with the State Environmental Policy Act (SEPA). The SEPA process assures that environmental impacts, including compliance with SMP regulations, are identified, minimized and mitigated, where possible. The County adopts the state's SEPA rules by reference (Chapter 197-11 WAC).

MCC Chapter 14.48 Stormwater Management: Mason County, in accordance with National Pollutant Discharge Elimination Systems (NPDES) and Department of Ecology, has developed protocol for a Stormwater Management Program (SWMP). The purpose of stormwater management, as stated in Chapter 14.48.010 of the MCC, is to "minimize water quality degradation and sedimentation in streams, ponds, lakes, wetlands and other water bodies" and "provide guidance on development and construction procedures, which will encourage the preservation of existing natural vegetation to the maximum extent practicable." The County has adopted the 2005 Department of Ecology Stormwater Management Manual for Western Washington.

Chapter 17.80 Low Impact Development (LID): Chapter 17.80 requires new development in Allyn and Belfair urban growth areas to implement LID techniques. One main purpose of the chapter is to manage stormwater through a land development strategy that emphasizes conservation and use of on-site natural features integrated with engineered, small-scale hydrologic controls to more closely mimic predevelopment hydrologic conditions. The chapter establishes minimum requirements for setting aside native vegetation areas, maximum impervious surface areas, and minimum requirements for reducing the size of conventional detention facilities (e.g., ponds). The duff layer and native topsoil must be retained in an undisturbed state or stockpiled on site to be reapplied to the site where feasible. A site

assessment is required that identifies in a series of maps the location of streams, lakes, wetlands, and buffers; steep slopes, and other hazard areas; significant wildlife habitat areas; and permeable soils offering the best available infiltration potential. These maps are intended to help designate the appropriate development areas, which will contain all impervious surfaces and landscaped areas on the site, be configured to minimize soil and vegetation disturbance, buffer critical areas, and take advantage of a site's natural stormwater processing capabilities. Areas outside of the designated development area envelope must be designated as native vegetation areas or reserve areas.

MCC Chapter 14.22 Flood Damage Prevention: The purpose of Chapter 14.22 of the MCC is to promote public health, safety, and general welfare, and to minimize public and private losses due to flooding. In order to accomplish its purpose, this chapter includes methods and provisions for: restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities; requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction; controlling the alteration of natural floodplains, stream channels and natural protective barriers which help accommodate or channel floodwaters; controlling filling, grading, dredging and other development which may increase flood damage; and preventing or regulating the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas. Chapter 14.22 outlines specific requirements, construction procedures, permitting and requirements for the development of lands located within areas subject to flood hazard. The Chapter also designates the floodplains of the Skokomish River and Vance Creek and its tributaries as a special flood risk zone where construction of new structures and expansion of the square foot area of existing structures is prohibited and additional restrictions are placed on the construction and replacement of dikes, levees, bridges, and roads.

MCC Title 16 Plats and Subdivisions: The purpose of Title 16 is to regulate the subdivision of land and make appropriate provisions for public health, safety and general welfare, for open spaces, drainage ways, potable water supplies, sanitary wastes, parks and recreation areas and other public requirements. Subdivisions must be consistent with the Mason County Comprehensive Plan and must be served with adequate means of access, fire protection, drainage, water supplies, and means of sanitary sewage disposal.

MCC Title 17 Zoning (excluding 17.80 and 17.50): The purpose of Title 17 is to provide a framework for the development of land in Mason County; and to assure that such development occurs in such a way that it protects private property rights and existing land uses while also protecting natural resources, promoting economic growth and assuring the compatibility of proposed land uses with existing ones. The Mason County zoning code regulates land uses through the establishment of 35 zoning districts. Each zoning district includes requirements on minimum lot sizes, maximum densities and performance standards.

Section 5.2: What State and Federal Regulations Protect Shorelines?

In addition to local regulations and non-regulatory organizations and agencies, a number of state and federal agencies have regulatory jurisdiction over resources in the County's shoreline jurisdiction. As with local requirements, state and federal regulations apply throughout the County and significantly reduce the potential for cumulative impacts to shorelines. The major state and federal regulations affecting shoreline-related resources include, but are not limited to:

Endangered Species Act (ESA): The federal ESA addresses the protection and recovery of federally listed species. The ESA is jointly administered by the National Oceanic and Atmospheric Administration (NOAA) Fisheries (formerly referred to as the National Marine Fisheries Service), and the United States Fish and Wildlife Service (USFWS).

Clean Water Act (CWA): The federal CWA requires states to set standards for the protection of water quality for various parameters, and it regulates fill, excavation, and dredging in waters of the U.S., including wetlands. Certain activities affecting wetlands in shoreline jurisdiction or work in the adjacent rivers may require a permit from the U.S. Army Corps of Engineers and/or Washington State Department of Ecology under Section 404 and Section 401 of the CWA, respectively. Further, permits regulating aquaculture in marine waters are also within the purview of the CWA and the Corps of Engineers.

Federal Emergency Management Agency (FEMA) National Flood Insurance Program: Communities that participate in the National Flood Insurance Program receive federally backed flood insurance. In order to participate, a community must adopt and enforce floodplain management regulations to reduce future flood damage. The Federal Emergency Management Agency is responsible for mapping the country's flood hazard areas.

Hydraulic Project Approval (HPA): The Washington Department of Fish and Wildlife (WDFW) regulates activities that use, divert, obstruct, or change the natural flow of the beds or banks of waters of the state and which may affect fish habitat. Projects in the shoreline jurisdiction requiring construction below the ordinary high water mark could require an HPA from WDFW. Projects creating new impervious surface that could substantially increase stormwater runoff to waters of the state may also require approval.

Rivers and Harbors Act: Any work or project that may affect or obstruct navigable waters requires a Section 10 permit under the Rivers and Harbors Appropriation Act of 1899. The U.S. Army Corps of Engineers reviews and authorizes projects with either a standard individual permit, letter-of-permission, nationwide permit, or regional permit.

National Pollutant Discharge Elimination System (NPDES): Ecology regulates activities that result in wastewater discharges to surface water from industrial facilities or municipal wastewater treatment plants. NPDES permits are also required for stormwater discharges from

industrial facilities, construction sites of one or more acres, and municipal stormwater systems that serve census-defined Urbanized Areas (more than 50,000 people and population densities greater than 1,000 per square mile).

Washington State Forest Practices Act: The Act governs activities related to the growing, harvesting, or processing of timber on non-federal lands. There are four classifications of forest practice: Classes I-IV. All forest practices are regulated by the Department of Natural Resources with the exception of Class IV which is administered by Mason County. Rules under the act are designed to protect public resources such as water quality and fish habitat while maintaining a viable timber industry. A forest practice permit is required whenever more than 5,000 board feet of merchantable timber is harvested from an area or property that is greater than two acres in size.

Magnuson–Stevens Act: The Act, originally enacted as the Fishery Conservation and Management Act of 1976, has been amended many times over the years including the Sustainable Fisheries Act of 1996 and then the Magnuson–Stevens Fishery Conservation and Management Reauthorization Act of 2006. It established eight regional councils to manage fish stocks by conserving fishery resources and habitats, reducing by-catch, supporting enforcement of international fishing agreements, and developing underutilized fisheries. The National Marine Fisheries Service (NMFS) and the Secretary of Commerce evaluate, approve, and implement the Councils' Fishery Management Plans.

Section 5.3: What Role do Non-regulatory Programs Have in Protecting Shorelines?

A. Mason County Shoreline Restoration Plan

During the SMP Update Process, the County developed a Shoreline Restoration Plan that provides recommendations for restoring the County's shorelines as well as a framework under which shoreline restoration can be successfully achieved (ESA, 2013). The Restoration Plan builds on and incorporates information from the Final Draft Shoreline Inventory and Characterization Report (ESA, 2012) and other ongoing local and regional efforts to understand and manage the County's diverse shorelines. As required by the state guidelines established in WAC 173-26-201, the Restoration Plan includes the following key elements of the shoreline restoration planning process:

- Identification of degraded areas, impaired ecological functions, and sites with potential for ecological restoration.
- Identification of existing and ongoing projects and programs that are currently being implemented which are designed to contribute to local restoration goals (such as

capital improvement programs [CIPs] and watershed planning efforts [WRIA habitat/recovery plans]).

- Identification of additional projects and programs needed to achieve local restoration goals, and implementation strategies including identifying prospective funding sources for those projects and programs.
- Establishment of overall goals and priorities for restoration of degraded areas and impaired ecological functions.
- Identification of timelines and benchmarks for implementing restoration projects and programs and achieving local restoration goals.
- Establishment of mechanisms or strategies to ensure that restoration projects and programs will be implemented according to plans and to appropriately review the effectiveness of the projects and programs in meeting the overall restoration goals (e.g., monitoring of restoration project sites).

The Restoration Plan identifies shorelines that are high priorities for restoration, shorelines that have good restoration potential, and specific actions that can be taken throughout the County to improve shoreline conditions. Examples of restoration actions identified in the plan include armor removal, beach nourishment, and tidal flow restoration on Hood Canal; armor removal, stream mouth enhancement, and removal of tidal constrictions on South Puget Sound; reduction of docks and bulkheads on lakes; and protection and restoration of riparian areas, removal of fish passage barriers, and wetland restoration along streams and rivers. As components of the plan are implemented on a voluntarily basis or as mitigation for development impacts, the County expects to see a gain in shoreline ecological functions, which will counteract some of the effects of past and expected future development to improve conditions over time.

B. Other Non-Regulatory Programs/Organizations

The **Puget Sound Partnership** is charged with restoring shorelines and related habitats in Puget Sound. The Partnership's Action Agenda lays out a program for restoring ecological functions, processes, and habitats through capital improvements, education and outreach, land acquisition and other means. This program is very high on the state's list of priorities and when implemented is likely to have a very positive effect on the Puget Sound.

Shore Friendly Mason is a new program underway at Mason Conservation District that will be fully established by late summer 2016 (funded by the last NEP Puget Sound Marine and Nearshore Grant Program). The over-arching, long-term goal of the Shore Friendly Mason initiative is to broaden local homeowner access to unbiased, non-regulatory, professional technical assistance for marine shorelines in order to reverse the trend of

residential shoreline armoring and habitat degradation. The Shore Friendly program integrates social marketing research from WDFW with local priorities to support shoreline stewardship and to develop shoreline armor removal projects. The program provides site-specific technical support, resources, and information to help homeowners change their behavior as they navigate the complexities and responsibilities of living in a dynamic coastal environment. It offers site-specific erosion evaluations that often end up preventing new hard armor installation and instead result in new shoreline planting projects or drainage improvements. In cases where erosion threatens a home and site conditions are appropriate, we encourage the use of soft shoreline protection as an alternative to conventional hard armor. Local response has been extremely enthusiastic. Within the first year, we assessed over a mile of shoreline at more than 30 private residential properties.

Other non-regulatory programs/organizations that are active in restoring, protecting, and educating the public about Mason County shorelines are listed below. The organizations and agencies carrying out these programs have all previously implemented projects that have enhanced the shoreline environment or that have taken initial steps towards enhancement and protection of resources.

Alliance for a Healthy South Sound (AHSS)

Capitol Land Trust

Chehalis River Basin Land Trust

Great Peninsula Conservancy

Hood Canal Coordinating Council

Hood Canal Dissolved Oxygen Program

Hood Canal Salmon Enhancement Group

Interagency Committee for Outdoor Recreation, Washington Wildlife Recreation Program

Long Live the Kings

Mason Conservation District

Mason County Noxious Weed Control Board

Mason County Small Farms Program

Mason County Water Quality Program

National Fish and Wildlife Foundation

Natural Resources Conservation Service

Northwest Indian Fisheries Commission

Oakland Bay Clean Water District - Friends of Oakland Bay

Point No Point Treaty Council

Puget Sound Nearshore Ecosystem Restoration Project (PSNERP)

Salmon Recovery Funding Board (SRFB)

Skokomish Tribe

Skokomish Watershed Action Team

South Puget Sound Salmon Enhancement Group

Squaxin Island Tribe Natural Resource Department

U.S. Army Corps of Engineers, Section 206 Aquatic Ecosystem Restoration Projects

Washington State Department of Health, Office of Shellfish and Water Protection

WSU Mason County Extension

Chapter 6: GENERAL ASSESSMENT OF NO NET LOSS

The Mason County SMP regulations (dated December, 2016) provides a comprehensive update to the existing SMP goals, policies and regulations and establish more uniform management of the County's shorelines consistent with the Ecology guidelines. The new shoreline environment designation system is consistent with the Ecology recommended system and derives from the conclusions from the Final Draft Shoreline Inventory and Characterization Report (ESA et al., 2012). In addition, the Mason County Shoreline Restoration Plan (ESA et al., 2013) identifies opportunities to improve or restore ecological functions that have been impaired as a result of past development activities. Together, these reports document the existing conditions within the County's shorelines at the time of this SMP Update.

This analysis was guided by the three factors identified in the Ecology guidelines for evaluating cumulative impacts and no net loss:

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

The principle that the regulation of development shall achieve no net loss of ecological functions requires that master program policies and regulations address the cumulative impacts on shoreline ecological functions that would result from future shoreline development and uses that are reasonably foreseeable from this master program. To comply with the general obligation to assure no net loss of shoreline ecological function, the process of developing the policies and regulations of this shoreline master program requires assessment of how proposed policies and regulations cause and avoid such cumulative impacts.

The combination of the following provisions in the Draft SMP has been identified to contribute positively **towards a conclusion of no net loss** for Mason County:

- Reclassification of shorelands using the new proposed shoreline environment designation system that is tied to the existing land use, biological and physical nature, and community vision. For example, shorelines formerly considered Urban Residential have been reclassified in some areas to Conservancy. The Urban Residential area extended beyond urban growth boundaries and was inconsistent with the zoning, land character and existing conditions.
- Incorporation of and improving upon the standards in the Resource Ordinance, as amended, which met the best available science test at the time of adoption, as identified by state approval and subsequent court challenges.
- Developing a Channel Migration Zone map, so that CMZ language in the Resource Ordinance will have meaning.

- Special protections for Hood Canal, a shoreline of statewide significance including: restricting single-use docks and piers and prohibiting net pens.
- Assigning a Conservancy designation to the Skokomish River, a shoreline of statewide significance. The existing Floodplain Damage Prevention Ordinance prohibits new structures and substantial improvements in the Skokomish floodplain/floodway, but its definition of structure is limited to those that are "walled and roofed." However, the SMP restricts development within floodplains to a greater degree because it prohibits residential structures floodways, and the SMP's definition of structure is more expansive.
- New standards for construction of docks, including a prohibition in Natural designations, a requirement for a cumulative impacts analysis for construction of new docks when a CUP is required.
- New standards for mitigation sequencing including avoidance, minimization and mitigation for impacts within the shoreline jurisdiction. Examples include: for new bulkheads - a new requirement that need based on geotechnical analysis that erosion imminently threatens a primary structure and that all soft stabilization measures have been seriously considered.
- Requiring a statement of exemption for most activities that are exempt from the shoreline Substantial Development Permit to ensure consistency with the SMP (the statement of exemption is optional for development that doesn't require section 10 or 404 authorization).
- Geotechnical reports required for new development in or near landslide hazard areas will need to provide an assertion that the proposed development is set back sufficiently to ensure that new shoreline stabilization is unlikely to be necessary during the life of the structure or that the proposed development has been, to the extent feasible, minimized and located as far from the shoreline as possible.
- In the Resource Ordinance, where common line buffers (reduced setbacks on lakes and saltwater for residential development) were previously reduced, the new Resource Ordinance does not reduce the buffer width. Instead, residential development is allowed within the buffer (behind the common line), but the development envelope must provide mitigation in a specific manner. This resolves a problem with the existing Resource Ordinance that vaguely required some restoration, but contained language that did not adequately support that requirement.
- Increasing many of the minimum Fish and Wildlife Habitat Conservation Area buffers and setbacks (see Table 4-1).
- Creating a financial incentive for those who choose to replace hard armoring, such as a rock or concrete bulkhead, with soft stabilization measures. The incentive is simple and the rewards are reaped at time of permit application submittal.

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Knutson, K.C. and V.L. Naef. 1997. *Management Recommendations for Washington's Priority Habitats: Riparian*. Washington Department of Fish and Wildlife, Olympia, Washington.

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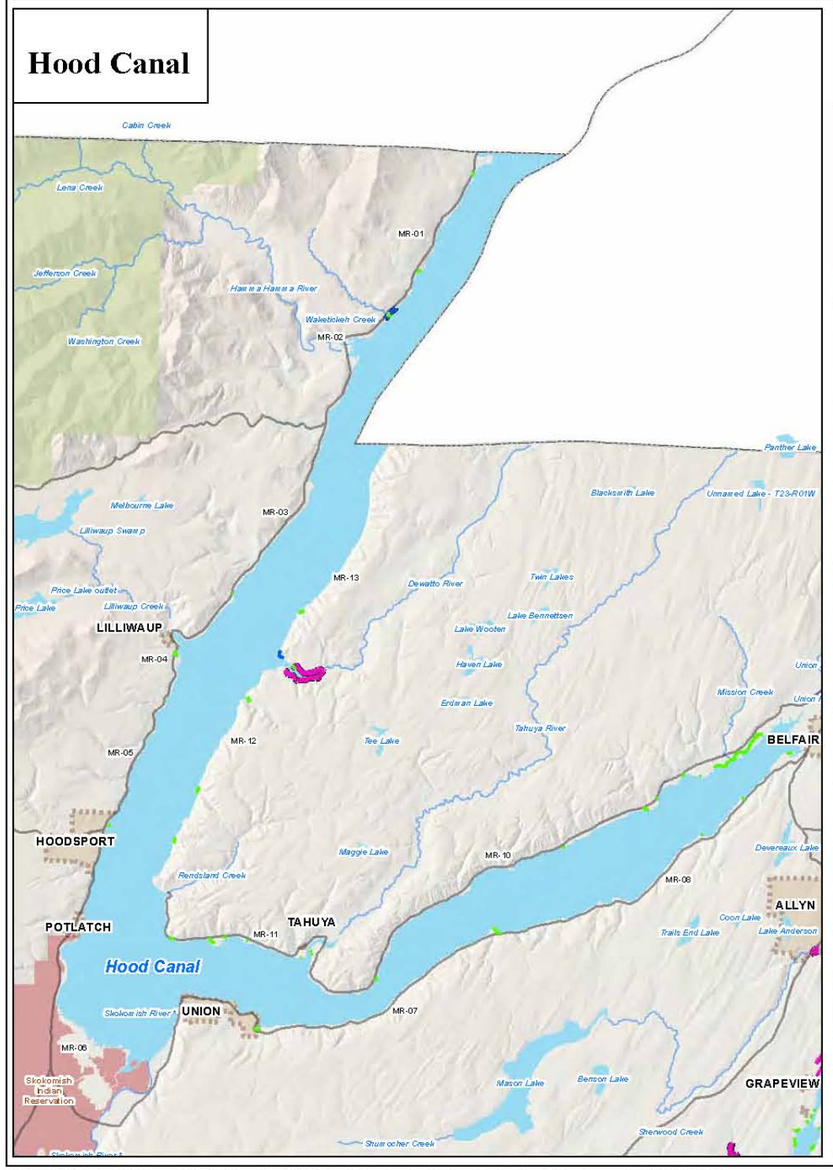
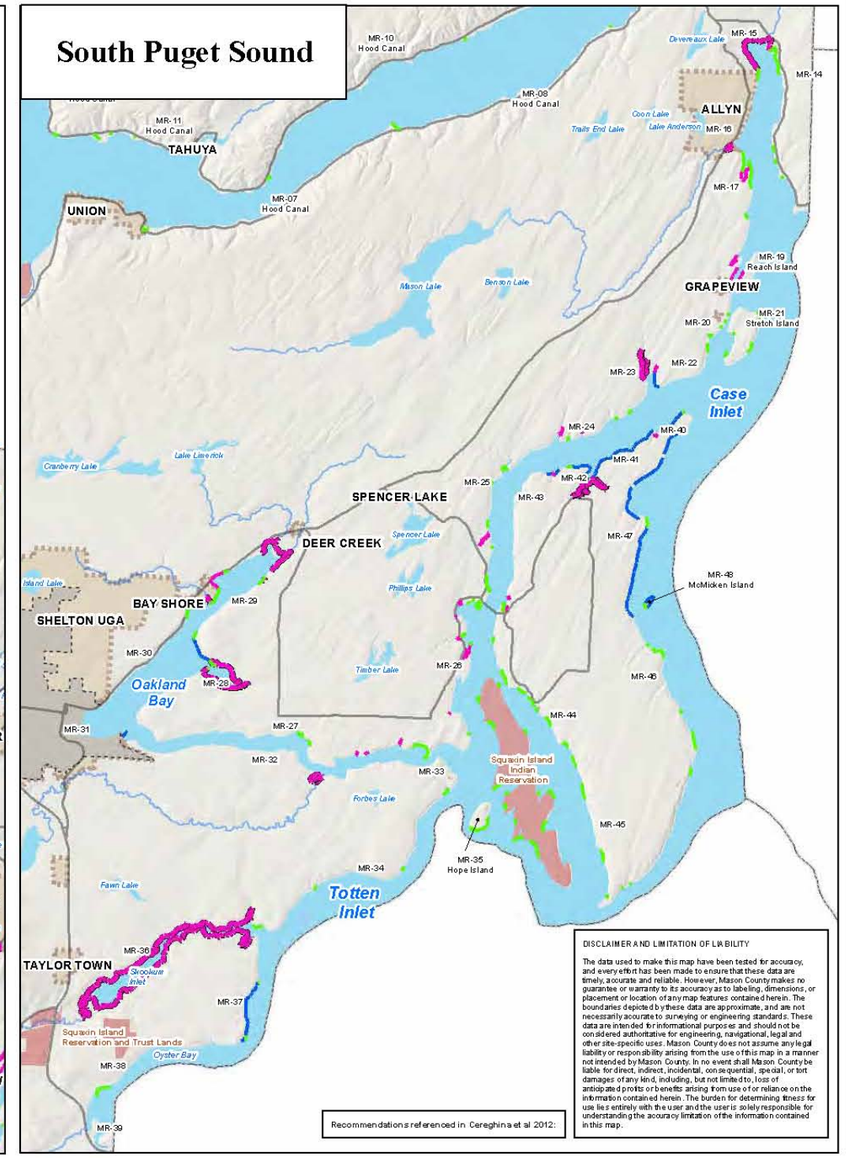
Mason County Shoreline Master Program - Restoration Plan

Figure 2: Recommended Protection Strategies





Recommendations referenced in Cereghino et al 2012:

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Legend

Recommended Restoration Strategies

Process, Strategy

Sediment Supply (SS)
- SS, Protect High, Bluff-backed beach
- SS, Protect, Bluff-backed beach

Sediment Transport (ST)
- ST, Protect, Barrier Beach

Tidal Flow (TF)
- TF, Protect High, Open coastal inlet
- TF, Protect, Open coastal inlet

- SMP Update Streams
- SMP Update Waterbodies
- Major Roads
- Railroads
- Shelton City Limits
- Indian Reservations
- UGA | Rural Activity Center Boundaries | Hamlets
- Wilderness Areas
- Olympic National Forest
- Olympic National Park

SMA Grant Agreement No. G1100004
Task 4.1

Coordinate System: State Plane NAD1983 (Ft)
Washington South FIPS 4602

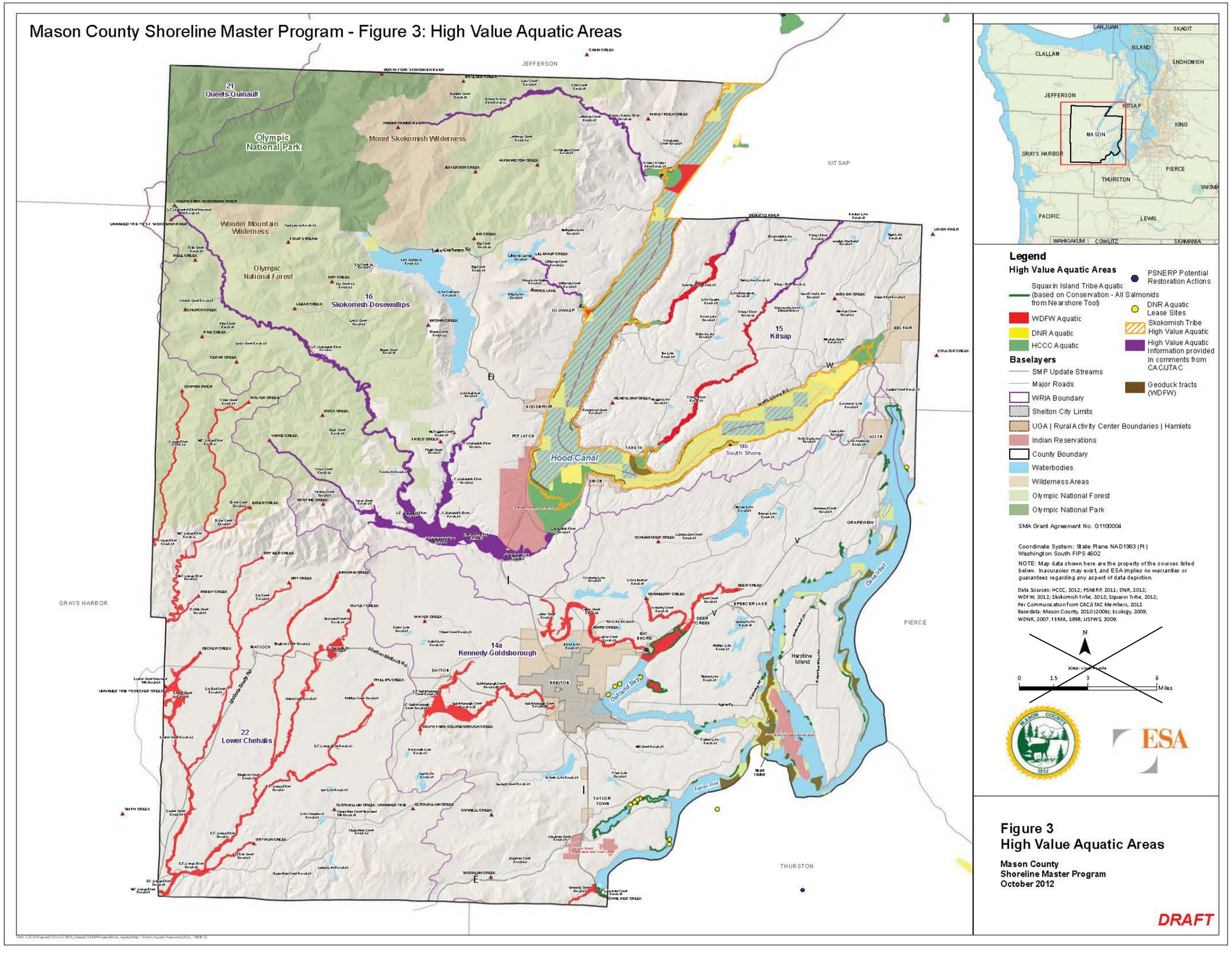
NOTE: Map data shown here are the property of the sources listed below. Inacuracies may exist, and ESA implies no warranties or guarantees regarding any aspect of data depiction.

Data Sources: PSNERP (Cereghino et al), 2012. Mason County, 2011 (2010); Ecology, 2009; WDNR, 2007

Figure 2
Protection Strategies
Marine Shorelines

Mason County
Shoreline Master Program
May 2012

Path: S:\GIS\Projects\210xxx\210570_MasonCoSMP\Projects\Restoration\4-1 Rec Protection Strategies.mxd (MJL; 06/29/11)


Mason County Shoreline Master Program - Figure 3: High Value Aquatic Areas
21 Queets-Quinault
Olympic National Park
Mount Skokomish Wilderness
Wonder Mountain Wilderness
Olympic National Forest
16 Skokomish-Dosewallips
15 Kitsap
14b South Shore
14a Kennedy-Goldsborough
22 Lower Chehalis
Hood Canal
Lake Cushman
Oakland Bay
Totten Inlet
Harstine Island
JEFFERSON
KITSAP
GRAYS HARBOR
PIERCE
THURSTON
Legend
High Value Aquatic Areas
Squaxin Island Tribe Aquatic (based on Conservation - All Salmonids from Nearshore Tool)
WDFW Aquatic
DNR Aquatic
HCCC Aquatic
PSNERP Potential Restoration Actions
DNR Aquatic Lease Sites
Skokomish Tribe High Value Aquatic
High Value Aquatic Information provided in comments from CACJTAC
Geoduck tracts (WDFW)
Baselayers
SMP Update Streams
Major Roads
WRIA Boundary
Shelton City Limits
UGA | Rural Activity Center Boundaries | Hamlets
Indian Reservations
County Boundary
Waterbodies
Wilderness Areas
Olympic National Forest
Olympic National Park
SMA Grant Agreement No. G1100004
Coordinate System: State Plane NAD1983 (Ft) Washington South FIPS 4602
NOTE: Map data shown here are the property of the sources listed below. Inacuracies may exist, and ESA implies no warranties or guarantees regarding any aspect of data depiction.
Data Sources: HCCC, 2012; PSNERP, 2011; DNR, 2012; WDFW, 2012; Skokomish Tribe, 2012; Squaxin Tribe, 2012; Per Communication from CACJTAC Members, 2012.
Basedata: Mason County, 2010 (2006); Ecology, 2009; WDNR, 2007; FEMA, 1998; USFWS, 2009.
N
0 1.5 3 6 Miles
ESA
Figure 3
High Value Aquatic Areas
Mason County
Shoreline Master Program
October 2012
DRAFT

APPENDIX B: ESA METHODOLOGY MEMO

ESA

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www.esassoc.com

memorandum

date September 9, 2011

to LaJane Schopfer, Jen Radcliff

from Teresa Vanderburg, Reema Shakra, Mike Leech

subject Mason County SMP Update - Parcel-based Buildout Analysis GIS Layer

We are starting to plan for the next phases of the SMP Update. One of the key layers that have been helpful in other jurisdictions is a parcel-based buildout analysis layer. We are hoping to get your help developing this layer for this project as it is an important tool to help estimate and describe the amount and the location of future development that may be allowed to occur within SMA jurisdiction under current regulations. It is also beneficial in allowing a community to test its development regulations – to get a glimpse of its possible future when all the remaining buildable land is developed to the maximum extent allowed under existing regulations. The build-out analysis will be used for multiple work products required under the Ecology grant: shoreline environment designation revisions, cumulative impact analysis report, and no-net-loss report. The build-out analysis will likely identify shoreline areas with varying degrees of development potential. Determining which areas have high or low development potential would inform the committees' and project team's review of existing environment designations. The build-out analysis would be used for the cumulative impact analysis and no net loss report to identify whether the proposed regulations would adequately protect existing ecological functions from future development, as projected by the build-out exercise.

There are many resources online for conducting a buildout analysis, but within the context of the SMP Update, it can be a more simplified effort. You may, however, find this tool useful for other planning applications/projects in the County. The results of the analysis would provide a geospatial tool for understanding development patterns along the shoreline in combination with the results of the inventory and characterization report. Below is a list of the possible categories and their descriptions:

Buildout Analysis Layer Categories (for Residential, Commercial and Industrial):

Category	Description	Assumption
Vacant Dividable	Undeveloped parcels that can be further developed.	If gross area / (2.5 * minimum lot size per zoning) > 1
Vacant Non-dividable	Lands which cannot be subdivided into multiple lots under current zoning regulations.	If gross area / (2.5 * minimum lot size per zoning) < 1
Underdeveloped (Occupied	Developed, but not to the density allowed for zoning (i.e. – a 40 acres	**Residential properties:** If existing dwelling units per acre /

Dividable)	parcel zoned R5 that has 1 residence but could be developed as 8 lots).	(.2 * allowed zoning density) ≤ 1 **Commercial/industrial properties:** If land value/improvement value > 1
Fully built out (Occupied Non-dividable)	Already developed at the density allowed by zoning (i.e. – a 5 acre parcel zoned R5 with a single family residence).	**Residential properties:** If existing dwelling units per acre / (.2 * allowed zoning density) > 1 **Commercial/industrial properties:** If land value/improvement value < 1
Not Eligible	Lands that are not likely to develop. This includes public lands such as state and county parks, tax exempt properties, right of ways, long term commercial forests, etc. as well as properties that have critical areas that would not meet the minimum size requirements for future development.	

Note: Numbers in table with yellow highlight are provided as examples. Determining whether a property is underdeveloped or dividable is based on assumptions established by the County.

This information can be derived by looking at what the Zoning categories are at a parcel level in combination with the parcel areas and the number of allowable dwelling units/acre for each zoning category. Below are the basic steps:

1. Identify appropriate data for analysis – This would include current parcels, zoning and critical areas layers
2. Remove critical areas from the analysis (areas of land that where development is not allowed based on critical areas regulations – wetlands, steep slopes, etc.) – recalculate areas for each parcel (OR Attribute these parcels as having Critical Areas)
3. Overlay zoning with parcels information
4. For residential properties, calculate existing density and lot size. Determine maximum density and minimum lot size based on each zoning category. Classify property as residential vacant dividable, residential vacant non-dividable, residential underdeveloped or residential fully built-out.
5. For commercial properties, calculate existing lot size. Determine minimum lot size based on each zoning category. Classify property as commercial vacant dividable, commercial vacant non-dividable, commercial underdeveloped or commercial fully built-out.
6. For industrial properties, calculate existing lot size. Determine minimum lot size based on each zoning category. Classify property as industrial vacant dividable, industrial vacant non-dividable, industrial underdeveloped or industrial fully built-out.
7. Create a new development category field and CODE parcels based on the above categories and descriptions.

Determine full build-out potential of vacant dividable and underdeveloped properties based on underlying zoning allowances. Meaning, the number of lots or dwelling units a vacant dividable or underdeveloped property could add.