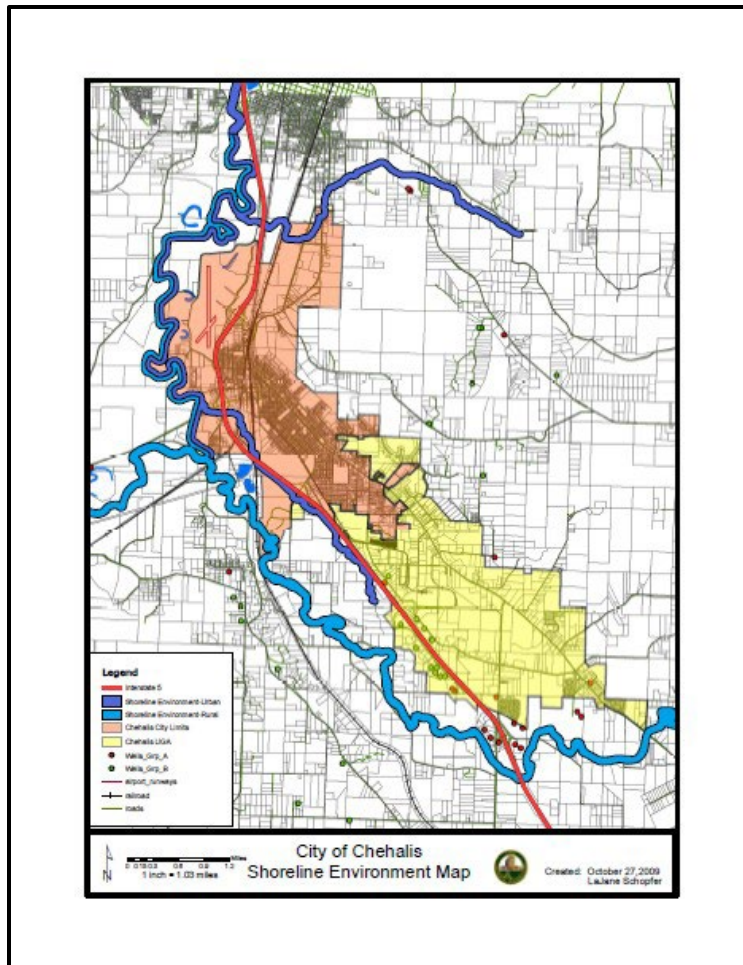


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CUMULATIVE IMPACTS AND NO NET LOSS ANALYSIS

City of Chehalis Shoreline Master Program



April 2022

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CUMULATIVE IMPACTS ANALYSIS

CITY OF CHEHALIS SHORELINE MASTER PROGRAM

1 INTRODUCTION

1.1 BACKGROUND & PURPOSE

This Cumulative Impacts and No Net Loss Analysis (CIA) is a required element of the City of Chehalis (City) Shoreline Master Program (SMP) update.

The State Master Program Approval/Amendment Procedures and Master Program Guidelines (SMP Guidelines) state that, “To ensure no net loss of ecological functions and protection of other shoreline functions and/or uses, master programs shall contain policies, programs, and regulations that address adverse cumulative impacts and fairly allocate the burden of addressing cumulative impacts” (WAC 173-26-186[8][d]).

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

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

The purpose of this CIA is to evaluate whether the City’s SMP would address adverse environmental impacts such that no net loss of ecological functions would result over a 20-year planning horizon. The baseline against which changes in ecological function are evaluated is current shoreline conditions, as documented in the Shoreline Inventory and Characterization Report (AHBL 2013). Per the SMP Guidelines, individual projects or activities that result in degradation of ecological functions must provide mitigation to return the resultant ecological function back to the baseline.

1.2 APPROACH

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

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

Consistent with this guidance, Section 2 of this CIA summarizes existing conditions in the City's shoreline jurisdiction. Section 3 summarizes regulatory programs that may influence development activity in the City's shoreline jurisdiction. Section 4 analyzes the effects of application of the SMP on shoreline ecological functions given anticipated future development. Finally, Section 5 recaps the information in previous sections and features concluding remarks.

1.3 METHODS AND SOURCES OF INFORMATION

To establish a baseline for evaluating cumulative impacts, as well as to complete a no net loss analysis, this document considers the following information:

1. Existing development within the shoreline environment;
2. Allowed development under the Shoreline Master Program;
3. Foreseeable development within the City and the potential impacts of this development on the shoreline environment;
4. The effect of the Shoreline Master Program and other regulations on these potential impacts;
5. Whether the regulations will ensure no net loss of ecological functions.

This document relies heavily on the Shoreline Inventory and Characterization Report that was prepared by a team of environmental consultants for Lewis County Community Development.¹ Please refer to Section 4.6 of the Inventory and Characterization where much of the information contained in this report is presented in more detail.

¹ Shoreline Inventory and Characterization Report, by Herrera and Associates, AHBL, and Core GIS, 2013.

2 SUMMARY OF EXISTING CONDITIONS

2.1 CITY PROFILE

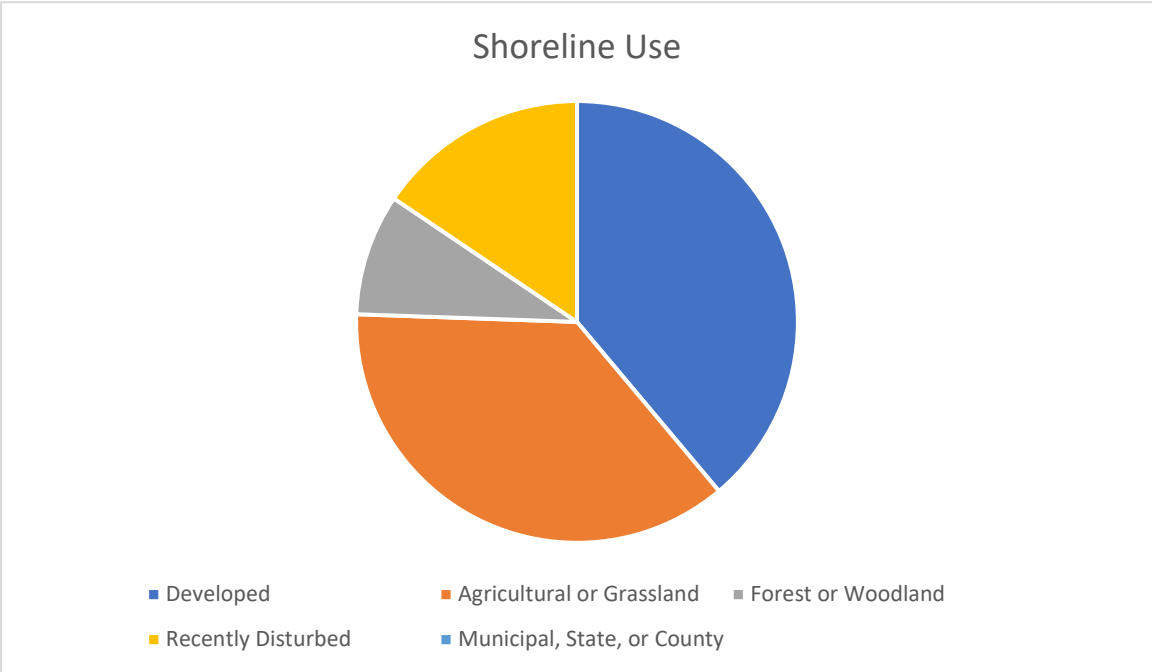
Totaling 1,027 acres, City of Chehalis has 5 stream reaches that are within Shoreline jurisdiction:

City of Chehalis Shoreline Reaches			
Reach Number	Primary Waterbody Name	Shoreline Area (acres)	Map Reference (Township-Range)
CH-01	Salzer Creek	262.1	T14N-R02W
H-02	Chehalis River	336.6	T14N-R02W, T14N-R03W
CH-03	Newaukum River	67.5	T13N-R02W
CH-04	Berwick Creek	3.7	T13N-R02W
CH-05	Berwick Creek	190.4	T13N-R02W

Dillenbaugh Creek

Located primarily in Lewis County, a small segment of Dillenbaugh Creek also flows through the City of Chehalis. Dillenbaugh Creek does not meet the minimum 20cfs mean annual flow to qualify as a shoreline. As such, the Creek was not evaluated when the Shoreline Inventory and Characterization was completed. However, because Lewis County has elected to regulate Dillenbaugh Creek as an Urban Conservantct Shoreline, the City of Chehalis has elected to do the same to ensure consistency.

Land cover in the city's shoreline management area is 35 percent developed, 33 percent agricultural vegetation or grassland, 18 percent forest or woodland, and 14 percent recently disturbed. Ninety-two percent of the land is privately owned; the remaining 11 percent is municipal, county, or state land. Table 4.67 summarizes the physical characteristics of the city's shoreline management area and the ecoregion in which it is located. Table 4.68 lists the reaches in the city's shoreline management area.



Current and future land use for the Shoreline Management Areas is predicted in a variety of ways. First, the Future Land Use map contained within the City’s Comprehensive Plan provides guidance on how the areas are likely to develop in the future. Current zoning, which is often quite similar to what is contained in the Future Land Use map, also provides guidance on what development is likely to occur.

The following summary and analysis is taken directly from the Shoreline Inventory and Characterization report, with only slight medication to the labeling of the Tables:

2.2 EXISTING SHORELINE LAND USE AND DESIGNATIONS

The Comprehensive Land Use designations from the city of Chehalis Comprehensive Plan in the city’s shoreline management area are provided in Tables 4.70a and 4.70b. Land use designations reflect the community’s goals and they will be used in the process of determining the environment designations for the city’s shoreline jurisdiction.

The current land use patterns that are found in the city’s shoreline management area are provided in the tables below. Existing land use patterns will be used in the process of determining the environment designations for the city’s shoreline jurisdiction. Land use data was from the Lewis County Assessor’s office records. A review of shoreline permit history over the past 10 years within the city was not available for this report.

Comprehensive Plan Designations Representing Future Land Use in City of Chehalis		
Description	Typical Uses	Percentage of Management Area
Residential, Low Density	Single-family development	3.5%
Industrial	Manufacturing and warehousing	21.6%
Commercial	Offices, retail establishments, or similar uses	51.4%
Essential Public Facilities (EPF)	Airport, Cemetery, Fairgrounds, Government, Hospital, Institution, Park/Playground, School, Utility, and Wetlands	23.3%
Urban Growth Areas	Residential, Commercial, and Industrial lands	0.2%

Comprehensive Plan Designations Representing Future Land Use in City of Chehalis by Reach.					
Description	Reach				
	CH-01	CH-02	CH-03	CH-04	CH-05
Residential, Low Density	0%	3%	0%	0%	0%
Industrial	29%	2%	0%	0%	41%
Commercial	38%	88%	0%	100%	58%
Essential Public Facilities (EPF)	33%	8%	100%	0%	0%
Urban Growth Areas	0%	0%	0%	0%	1%
Grand Total	100%	100%	100%	100%	100%

Current Land Use Patterns in City of Chehalis – Citywide.	
Current Land Use Patterns	Percentage of Management Area
Single-Family Residential	9.4%
Multi-Family Residential	0.4%
Commercial	5.8%
Industrial	2.4%
Utilities	0.9%
Right-of-Way	9.6%
Railroad	2.6%
Service/Government	5.5%
Cultural/Recreational	9.6%
Open Space	11.3%

Current Land Use Patterns in City of Chehalis – Citywide.	
Current Land Use Patterns	Percentage of Management Area
Agriculture	15.3%
Water	3.9%
Vacant/Undeveloped	21.3%
Unknown	2.0%

Current Land Use Patterns	CH-01	CH-02	CH-03	CH-04	CH-05
SF Residential	2%	16%	0%	0%	19%
All other Residential	0%	0%	0%	0%	3%
Manufacturing	7%	0%	0%	0%	5%
Transportation/Utilities	7%	2%	0%	0%	2%
Commercial	7%	1%	0%	0%	5%
Government/Services	1%	3%	0%	6%	16%
Cultural/Recreational	9%	3%	96%	0%	0%
Agriculture	2%	41%	4%	85%	15%
Mining	0%	0%	0%	0%	0%
Forest	0%	0%	0%	0%	0%
Residential Land - Undivided	58%	3%	0%	9%	35%
Open Water	0%	0%	0%	0%	0%
Open Space	8%	32%	0%	0%	0%
Timber	0%	0%	0%	0%	0%
Grand Total	100%	100%	100%	100%	100%

The zoning designations from the city of Chehalis Code (Chehalis Municipal Code, Title 17 - Uniform Development Regulations) that are found in the city’s shoreline management area are provided in the tables below. Zoning designations reflect the community’s goals as enacted by its Comprehensive Plan and they will be used in the process of determining the environment designations for the city’s shoreline jurisdiction.

- Reach CH-01 – Chehalis – Salzer Creek

Current Land Use: The reach is characterized by undeveloped land and commercial land uses. Salzer Creek runs through the northern portion of the reach and Coal Creek, which is not a shoreline of the state as designated by RCE 90.58.030(2), flows north through the reach. The entire reach is within the floodway or the 2010 flood channel study area and the majority of acreage is wetlands. As such, there is limited development within the reach that includes portions of a car lot and a shopping center.

Water-dependent Uses and Water-related Uses: There are no water-dependent or water-related uses in this reach.

Future Land Use: The Comprehensive Plan includes industrial, commercial, and essential public facilities (EPF) uses within this reach. A limited level of redevelopment is expected in this reach subject to flood hazard limitations.

Current Zoning Designations in City of Chehalis - Citywide.			
Description	Symbol	Typical Uses	Percentage of Management Area
Single -Family Residential – Medium Density	R2	Single-family residence, maximum of 4 units per 10 acres	3.5%
General Commercial	CG	Office, retail, or similar uses	48.7%
Freeway-Oriented Commercial	CF	Commercial services located near major transportation routes	2.7%
Essential Public Facilities Fairgrounds	EPF (F)	Fairgrounds	2.1%
Essential Public Facilities Institution	EPF (I)	Institutions	4.8%
Essential Public Facilities Park/Playground	EPF (P)	Park or playground	8.8%
Essential Public Facilities Utility	EPF (U)	Utilities	1.2%
Essential Public Facilities Wetland	EPF (W)	Wetlands	6.4%
Heavy Industrial/General Commercial	IH / CG	High intensity industrial uses including manufacturing	7.3%
Light Industrial	IL	Industrial or commercial retail activity, light intensity	7.6%
Light Industrial/General Commercial	IL / CG	Industrial or commercial retail activity, light intensity	6.7%
Urban Growth Area Residential	RUGA	Residential uses located within the Chehalis UGA	0.2%

Current Zoning Designations City of Chehalis by Reach.					
Description	Reach Number				
	CH-01	CH-02	CH-03	CH-04	CH-05
CF	2%	0%	0%	100%	0%
CG	36%	88%	0%	0%	58%
EPF (F)	8%	0%	0%	0%	0%
EPF (I)	0%	0%	0%	0%	0%
EPF (P)	0%	5%	100%	0%	0%
EPF (U)	0%	4%	0%	0%	0%
EPF (W)	25%	0%	0%	0%	0%
IH / CG	29%	0%	0%	0%	0%
IL	0%	0%	0%	0%	41%
IL / CG	0%	2%	0%	0%	0%

Current Zoning Designations City of Chehalis by Reach.					
Description	Reach Number				
	CH-01	CH-02	CH-03	CH-04	CH-05
R2	0%	3%	0%	0%	0%
RUGA	0%	0%	0%	0%	1%
Grand Total	100%	100%	100%	100%	100%

City of Chehalis Management Area (City of Chehalis). Average Parcel Information.				
Primary Waterbody Name	Reach Number	Average Parcel Size (acre)	Average Parcel Width (feet)	Average Parcel Depth (feet)
Salzer Creek	CH-01	6.40	333	978
Chehalis River	CH-02	3.36	245	446
Newaukum River	CH-03	29.13	901	2,013
Berwick Creek	CH-04	17.38	672	1,307
Berwick Creek	CH-05	5.46	370	687
Unnamed Lake	CH-06	4.79	213	721

- Reach CH-02 – Chehalis – Chehalis River

Current Land Use: The reach is characterized by uncultivated agricultural land, parks and open space, and single-family residential land uses. The Chehalis River bounds the reach to the west. Riverside Golf Course is located at the northern part of the reach and Robert J. Lintott/Alexander Park is located at the southernmost portion. The city of Chehalis Wastewater Treatment Plant is located in this reach on Northwest Shoreline Drive.

Water-dependent Uses and Water-related Uses: There are no water-dependent uses in this reach. Shoreline parkland with access to the river, Robert J. Lintott/Alexander Park, Riverside Country Club, and Airport Levee Trail, represent water-related uses within the reach.

Future Land Use: The Comprehensive Plan includes low-density residential, industrial, commercial, and essential public facilities (EPF) uses within this reach. A limited level of redevelopment is expected in this reach subject to flood hazard limitations.

- Reach CH-03 – Chehalis – Newaukum River

Current Land Use: The majority of land within the reach is part of Stan Hedwall Park. A small portion of land is designated agricultural use. As a result, the reach is characterized by parks with shoreline access. There are no structures or development in the reach.

Water-dependent Uses and Water-related Uses: There are no water-dependent uses in this reach. The shoreline parkland with access to the river, Stan Hedwall Park, represents water-related uses within the reach.

Future Land Use: The Comprehensive Plan includes essential public facilities (EPF) uses within this reach. Little new development is expected in this reach.

- Reach CH-04 – Chehalis – Berwick Creek

Current Land Use: The reach is very small, approximately 3.75 acres and is characterized by undeveloped agricultural and residential land. It is located to the west of Interstate 5 and Berwick Creek. The reach has no existing development.

Water-dependent Uses and Water-related Uses: There are no water-dependent or water-related uses in this reach, as the reach does not provide direct shoreline access.

Future Land Use: The Comprehensive Plan includes commercial uses within this reach. A limited level of redevelopment is expected in this reach subject to flood hazard limitations.

- Reach CH-05 – Chehalis – Berwick Creek

Current Land Use: The reach is characterized by industrial and commercial land uses. The reach includes Berwick Creek and Dillenbaugh Creek, which is not designated as a shoreline of the state. The reach intersects Interstate 5 and portions of commercial and industrial land uses in the southern area of Chehalis. The reach also includes a railroad spur north of Hardel Mutual Plywood Corporation. As the reach is located in a commercial and industrial district, there is no public access to the shoreline.

Water-dependent Uses and Water-related Uses: There are no water-dependent or water-related uses in this reach.

Future Land Use: The Comprehensive Plan includes industrial, commercial, and urban growth area uses within this reach. A limited level of redevelopment is expected in this reach subject to flood hazard limitations.

- Transportation and Utilities

Interstate 5 intersects with the city's shoreline jurisdiction in reaches CH-01, CH-02, CH-05, and CH-06. A portion of North National Street and Northeast Kresky Avenue intersects the city's shoreline jurisdiction within reach CH-01 while Main Street (State Route 6) intersects with the city's shoreline jurisdiction within reach CH-02 and the Jackson Highway intersects with the city's shoreline jurisdiction within reach CH-05.

In addition to these larger roads, many local roads are present within the city's shoreline jurisdiction. In the city, there is one existing bridge across the Chehalis River at Main Street (State Route), one existing bridge over Berwick Creek at Jackson Highway, and two bridges over Salzer Creek at North National Street and Northeast Kresky Avenue.

The mainline of the BNSF intersects with the city's shoreline jurisdiction within reaches CH-01, CH-03, and CH-06.

- *Existing and Potential Public Access*

The city of Chehalis shoreline management area has 7.5 miles of shoreline jurisdiction. There are a number of public access points in the shoreline management area.

- Reach CH-01 – Chehalis – Salzer Creek

No existing or planned formal public access opportunities were identified in this reach.

- Reach CH-02 – Chehalis – Chehalis River

Public access opportunities in the reach include:

The **Riverside Country Club** golf course provides water-enjoyment use through visual access to the Chehalis River adjacent to the course.

The **Robert J. Lintott/Alexander Park** is located on Riverside Road West within a bend of the Chehalis River. The Alexander family donated 5.75 acres of land to the city in 1906 for park development. The park was restored in 2004 using a grant from Jim Lintott in honor of his father. The park has two covered kitchens, picnic sites, a restroom, and informal access to the river.

The **Airport Levee Trail** is 3.5 miles in length with a surface of 2 miles compacted gravel on the levee and 1.5 miles of sidewalk and pavement along retail area. From the parking lot on Louisiana Avenue, the trail begins on top of the levee. It continues for 2 miles along Airport Road past Riverside golf course, with a view of farmland on one side and the airport on the other. As it heads towards the freeway, it leaves the levee and goes through the retail section back to the parking area. The levee, protecting the airport from flooding, is an important link in the TransAlta Trail that will eventually connect Centralia and Chehalis with a motorized traffic-free walking/biking route.

- Reach CH-03 – Chehalis – Newaukum River

Public access opportunities in the reach include:

The **Stan Hedwall Park** is on Rice Road on 204 acres on the Newaukum River. It is the largest and newest of the city's parks. The park was named in honor of Stan Hedwall, who was a former park superintendent and city commissioner. The park has approximately 104 acres of wooded land and about 100 acres of open terrain. The Newaukum River flows through the wooded area, giving the park 2.25 miles of shoreline. The river provides fishing and is a popular site for rockhounding. There is a bridge over the river as well as 3 miles of trails.

The park also has a number of sports fields, a 29-site RV Area with restrooms and showers, and covered sheltered areas for group picnics.

- Reach CH-04 – Chehalis – Berwick Creek

No existing or planned formal public access opportunities were identified in this reach.

- Reach CH-05 – Chehalis – Berwick Creek

No existing or planned formal public access opportunities were identified in this reach.

▪ *Shoreline Modifications*

The following table lists the total length of dikes and levees for reaches where they are found in the available data, along with other shoreline modifications observed on aerial photographs in the course of doing reach functional assessments. Comprehensive information on shoreline modifications other than dikes and levees is not available for the city's shoreline management area.

Chehalis Management Area (City of Chehalis) Shoreline Modifications .		
Reach Number	Sum of Dike and Levee Length (feet) ^a	Other Shoreline Modifications ^b
CH-01	3,261	Dikes and infrastructure
CH-05	–	Adjacent agriculture, roads, and other development

^a Data Source: Lewis County Dikes and Levees shapefile
^b Aerial Photography: Google Earth, May 2013.

Table 4.73 summarizes the percent impervious surface for the six reaches within the city of Chehalis.

City of Chehalis Management Area (City of Chehalis) Additional Shoreline Modifications			
Primary Waterbody Name	Reach Number	Length of Stream Shorelines (miles)	Impervious Percentage
CH-01	Salzer Creek	0.95	11.8%
CH-02	Chehalis River	0.56	5.1%
CH-03	Newaukum River	0.61	2.9%
CH-04	Berwick Creek	–	0.3%
CH-05	Berwick Creek	1.20	20.2%

3 SUMMARY OF REGULATORY PROGRAMS

A variety of established local, state, and federal regulatory programs may influence development activity in the City’s shoreline jurisdiction. The current shoreline regulatory framework was discussed in the Shoreline Inventory and Characterization Report. Key regulatory programs identified in the report are listed in Table 3-1 below. Other regulatory programs may also be relevant.

Table 3-1. Key shoreline regulatory programs applicable to the City.

City	Existing SMP
	CMC Title 17 – City of Chehalis Comprehensive Plan, Uniform Development Regulations and Critical Areas Ordinance
State	Shoreline Management Act RCW 90.58
	Hydraulic Code RCW 77.55
	SEPA WAC 197-11
Federal	Rivers and Harbors Act Section 10
	Clean Water Act – Section 401, 402 and 404
	Endangered Species Act

Established regulatory programs can play an important role in the design and implementation of a shoreline project, ensuring that impacts to shoreline functions and values are avoided, minimized, and/or mitigated.

Please see Chapter 2 of the Shoreline Inventory and Characterization Report for more detailed discussion on the current regulatory framework for development activities along the City’s shoreline.

4 APPLICATION OF THE SMP

This section analyzes the effects of application of the SMP on shoreline ecological functions given anticipated future development. As discussed in Section 2, consistent with its comparatively small amount of shorelines and existing character, development activity on shoreline areas in Chehalis has been relatively limited in recent years. Based on previous trends, in Chehalis's shoreline jurisdiction it is anticipated to be limited in terms of location and extent. Future development activities in shoreline jurisdiction should be expected to include new development. The redevelopment, expansion, repair and maintenance of existing development in shoreline jurisdiction will primarily be park and golf course activities.

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

- *Environment designations:* Shoreline environment designations are based on existing shoreline conditions. Allowed uses focus medium and high intensity development in areas with a high level of existing alterations, while limiting future uses in areas where ecological functions and processes are more intact.
- *Shoreline critical areas regulations:* Shoreline critical areas regulations are based on the City's general critical area regulations, which were developed based on the best available science. Regulations include buffers for Shorelines of the State.
- *Mitigation sequencing:* SMP standards require applicants to avoid, minimize, and then compensate for unavoidable impacts to shoreline functions. Individual proposed use and development activities in shoreline jurisdiction will need to demonstrate how they have complied with the mitigation sequencing measures in the SMP.
- *Shoreline use and modification regulations:* Specific regulations for shoreline uses and modifications ensure that potential impacts are regulated to avoid a net loss of ecological function.

4.1 ENVIRONMENT DESIGNATIONS

The assignment of environment designations can help minimize cumulative impacts by concentrating development activity where it is not likely to result in significant function degradation from new development or redevelopment.

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

The SMP features four shoreline environment designations: High Intensity, Shoreline Residential, Urban Conservancy and Aquatic. In-water areas (areas waterward of the ordinary high water mark) are designated Aquatic. Designation criteria for each environment designation are provided below in Table 4-1.

Table 4-1. Environment designation criteria.

Environment Designation	Designation Criteria
High Intensity	<p>Currently supports high intensity uses related to commerce, industry, public facilities and transportation. Areas that are suitable for high intensity uses without degrading existing shoreline function. Areas designated in the Chehalis Comprehensive Plan and Zoning Regulations for mixed use, commercial, industrial, public and/or multi-family uses. Most High Intensity designations under Chehalis jurisdiction are located west of I-5 and the airport, small areas east and west of I-5 along Berwick Creek, and a small area at the very south end of the UGA along Dillenbaugh Creek. These areas are zoned for Commercial and Light Industrial Uses and are either already developed, or within the Port of Chehalis Master Plan.</p>
Urban Conservancy	<p>An Urban Conservancy environment designation is assigned to shoreline areas that are appropriate and planned for development that is compatible with maintaining or restoring the ecological functions of the area, that are not generally suitable for water-dependent uses, if any of the following characteristics apply:</p> <ul style="list-style-type: none"> • They are suitable for water-related or water-enjoyment uses; • They are open space, floodplain or other sensitive areas that should not be more intensively developed; • They have potential for ecological restoration; • They retain important ecological functions, even though partially developed; or • They have the potential for development that is compatible with ecological restoration. • Areas with existing, or designated in the Chehalis Comprehensive Plan and Zoning Regulations, for low intensity agricultural, recreational or residential uses. • Newly annexed or undesignated areas. <p>Zoning in this area is mostly parks, general commercial and light industrial.</p>

Environment Designation	Designation Criteria
Aquatic	An Aquatic environment designation is assigned to lands waterward of the ordinary high water mark. Outside of designated areas within the banks of the Chehalis River, Newaukum River and Berwick Creek; there are 3 identified aquatic areas under Chehalis' jurisdiction. Those three are designated "unnamed" numbers 13, 14 & 15 on the Chehalis SED maps. All three are designated wetland areas that run from north of the Green Hill School along I-5 to southeast of the Main Street exit 77.

Allowed uses in the environment designations focus more intense development activities in areas with higher levels of existing alterations, while limiting future uses in areas where ecological functions and processes are more intact. The High Intensity environment is the most permissive environment designation allowing for more intense uses such as industry, commercial, etc.

4.2 SHORELINE CRITICAL AREAS REGULATIONS

The SMP includes numerous regulations to address potential impacts to shoreline critical areas, including wetlands, fish and wildlife habitat conservation areas, frequently flooded areas, and geologically hazardous areas. Shoreline critical areas regulations protect shoreline critical areas in accordance with the most current, accurate, and complete scientific and technical information available. Shoreline critical areas regulations are based on the City's general critical area regulations, which were developed based on the best available science. However, the SMP critical areas were modified in certain areas as part of the SMP to adequately achieve the goals of the SMA and protect the shorelines. See section 1.06 for modification details.

Mitigation sequencing is required for all proposed impacts to shoreline critical areas. Other key regulations that will help ensure no net loss of shoreline ecological function include standard buffers for wetlands and streams, which are discussed below.

4.2.1 BUFFERS

The standard wetland buffer widths are based on wetland category and habitat score, and vary from 50 to 225 feet. Use of the standard buffer widths presumes the existence of a dense vegetation community in the buffer adequate to protect the wetland functions and values. When a buffer lacks adequate vegetation, the Director may increase the standard buffer, require buffer planting or enhancement, and/or deny a proposal for buffer reduction or buffer averaging. Buffer averaging is permitted under certain conditions, including that the buffer is increased adjacent to the higher-functioning area of habitat or more-sensitive portion of the wetland and decreased adjacent to the lower-functioning or less-sensitive portion, as demonstrated by a critical areas report from a qualified wetland professional.

Chehalis's Shorelines of the State are regulated as fish and wildlife habitat areas under the City's shoreline critical areas regulations.

Buffers for Shorelines of the State that are also fish and wildlife habitat critical areas are 150 feet. Buffers are intended to ensure no net loss of ecological function. In developing shoreline buffers, the following objectives were also considered:

- Avoid rendering existing development nonconforming;
- Avoid establishing buffers that would require a shoreline variance in order for reasonable development to occur;
- Minimize the number of shoreline segments requiring disparate buffers; and
- Create a buffer scheme that is easy for the City to implement and the public to understand.

When shorelines areas include other critical areas like wetlands, buffers may be bigger.

Any vegetation removal in shoreline jurisdiction must also meet the regulations in SMP section 5.07 Vegetation Conservation Area, which require that vegetation removal be limited to the minimum necessary and that mitigation sequencing be applied. Where unavoidable vegetation removal results in adverse impacts to shoreline ecological functions, new developments or modifications are required to develop and implement a mitigation plan. These provisions offer additional protection for any intact riparian areas that may be present outside of the designated buffers.

4.3 MITIGATION SEQUENCING

The mitigation sequence is a series of measures that must be applied, in order, to ensure they achieve no net loss of ecological functions. In short, these measures are to avoid, minimize, and then compensate for unavoidable impacts to shoreline functions (the full sequence is listed in SMP sectionSection 9. Mitigation sequencing applies to all projects in shoreline jurisdiction.

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

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

4.4 SHORELINE USE & MODIFICATION REGULATIONS

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

For those projects and uses with unforeseeable or uncommon impacts that cannot be reasonably identified at the time of master program development, the master program policies and regulations should use the permitting or conditional use permitting processes to ensure that all impacts are addressed and that there is not net loss of ecological function of the shoreline after mitigation.

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

Some activities within shoreline jurisdiction will likely fall under repair and maintenance. Repair and maintenance activities are generally exempt from shoreline substantial development permit requirements; however, SMP standards still apply.

4.4.1 AGRICULTURE

Likelihood of development: Agriculture is not known to currently occur within the City’s shoreline jurisdiction. Generally, parcels within city limits are not large enough or adequate to support medium to large scale agricultural activities. However, given the historical presence of agriculture in the Chehalis area, and existence of agriculture in the UGA, new agriculture—most likely on a small scale—could potentially occur within shoreline jurisdiction.

Application of the SMP: New agriculture would only be allowed if listed as permitted in the underlying zone. New agriculture would be allowed in the R-zones and I-zones of the City (residential and industrial). SMP section 6.02.01 requires no net loss of ecological function and SMP table 6-3 requires a 50’ setback. CMC 6.04.280 requires livestock areas be fenced and contain minimum space requirements for livestock. CMC 6.04.280.G(3) specifies no livestock fence shall be located within any NWI mapped area or any Shoreline Management Act jurisdictional area. CMC 6.04.280.G(2) specifies no livestock fence shall be located within 100’ of any residential structure not currently keeping livestock. Generally, city lots are too small and restricted by adjacent residential uses to allow for the creation of new agricultural uses. UGA parcels could be subject to agricultural activities but would have to comply with setbacks and fencing restrictions as required by CMC 6.04.

4.4.2 AQUACULTURE

Likelihood of development: No aquaculture currently exists in the City. While aquaculture is not anticipated within the City's shoreline jurisdiction, some scale or form of aquaculture could be appropriate.

Application of the SMP: Aquaculture would need to be located, designed, constructed, and managed to avoid a net loss of shoreline ecological functions per SMP section 6.02.02. The applicant would be required to complete a mitigation sequence analysis that describes how the proposal would avoid, minimize, and mitigate for any adverse impacts. A Shoreline Conditional Use Permit would be required for any aquaculture uses, which would include mandatory action on the City-issued permit by Ecology (approval, approval with conditions, or denial).

4.4.3 BOATING FACILITIES

Likelihood of development: This activity is not very likely since the City has no lakes with shoreline designation and the rivers that are identified with the designation are very shallow and most likely too narrow for docks, marinas and launches.

Application of the SMP: Where allowed, boating facilities must meet the mitigation sequence of SMP section 5.04.B(4). Boating facility size must be restricted to the minimum necessary to meet the needs of the proposed use. Structures must be made of materials that have been approved by applicable state agencies. Boat launches must be designed and constructed using methods and technologies that have been recognized and approved by state and federal resource agencies as the best currently available, with consideration of site-specific conditions.

4.4.4 COMMERCIAL DEVELOPMENT

Likelihood of development: Existing commercial development on Chehalis's shorelines is limited as most of the shorelines are recreational. However, there are areas zoned for commercial development, so new commercial development or redevelopment of existing commercial development could occur in the future.

Application of the SMP: Common effects of commercial development include increased impervious surfaces, increased traffic, and vegetation clearing. Under the SMP, water-oriented commercial development may be allowed in the high intensity designation and requires a conditional use permit in the shoreline residential and urban conservancy designations. Where allowed, commercial development must not result in a net loss of shoreline ecological functions. Other pertinent SMP provisions would also apply, such as those in the Section 5.08 on vegetation conservation. The use must be compatible with the underlying zoning. The majority of the commercially zoned property, inside city limits, within the shoreline jurisdiction is located at the Riverside Golf Course, along I-5 at exit 76 and along I-5 at exit 77. The area of the Riverside Golf Course located in the shoreline jurisdiction is also completely designated as Floodway. The area along I-5 at exit 76 contained wetland and flood zone areas. One area along I-5 at exit 77 is owned by the Washington State Department of Transportation and contained wetland and floodplain areas. The other areas along I-5 at exit 77 are park and/or Green Hill School owned,

designated wetlands and remain wet throughout the year. Development of these areas would require significant local, state and federal permitting requirements.

4.4.5 DREDGING & DREDGE MATERIAL DISPOSAL

Likelihood of development: Maintenance dredging may be required for a variety of issues. Upland dredge material disposal sites need to be identified if such activity occurs.

Application of the SMP: Dredging activities have potential short-term and long-term effects on the aquatic environment. Short-term effects can include elevated turbidity and direct habitat disturbance. Long-term effects may include the alteration of currents and sediment transport processes, both to on-site and downstream areas. Dredging activities require a Shoreline Conditional Use permit and action by Department of Ecology.

Upland dredge material disposal must be demonstrated not to result in significant or ongoing adverse impacts to water quality, fish and wildlife habitat conservation areas and other critical areas, flood holding capacity, natural drainage and circulation patterns, and significant plant communities. SMP Section 7.06 requires that all dredging and dredge material disposal be done in a manner that avoids or minimizes significant ecological impacts. Impacts that cannot be avoided must be mitigated in a manner that assures no net loss of shoreline ecological functions.

4.4.6 FILL & EXCAVATION

Likelihood of development: Not likely unless need to restore or enhance channels.

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

Fills and excavations may only be permitted when associated with an approved use (regulation 7.9[1]). Fill waterward of the ordinary high water mark is allowed under a narrow set of circumstances (regulation 7.9[2]). All fills and excavations must be located, designed and constructed to protect shoreline ecological functions and ecosystem-wide processes (regulation 7.9[3]).

4.4.7 FOREST PRACTICES

Likelihood of development: Forest practices could occur infrequently in shoreline jurisdiction.

Application of the SMP: As directed by the SMP Guidelines, the City would rely on the Forest Practices Act and implementing rules, as well as the Forest and Fish Report, as adequate management of forest practices (policy 4.2.10[1]). However, some development activities associated with forest practices, such as the construction of roads and bridges, would require a shoreline substantial development permit or exemption. Forest practice conversions and other Class IV-general forest practices where there is a likelihood of conversion to non-forest uses would need to assure no net loss of shoreline ecological functions (regulation 7.10[2]).

4.4.8 INDUSTRIAL DEVELOPMENT

Likelihood of development: Industrial activities are present in the City. Additional undeveloped land is located in the City and could potentially be developed for industrial use.

Application of the SMP: Common effects of industrial development include increased impervious surfaces, increased risk of contaminant spills and water quality contamination, and shoreline modifications, which may affect aquatic habitat. The SMP includes provisions to minimize the effects of new or redeveloped industrial uses. New industrial uses are limited to Commercial shorelines, which restricts industrial activities to shorelines that have been impacted. The SMP would require that industrial development be located, designed, constructed, and operated in a manner that provides for no net loss of shoreline ecological function. The SMP requires the design, construction and operation of shoreline uses and developments to incorporate measures, including but not limited to best management practices, to prevent impacts to surface water and groundwater quality and quantity that would result in a net loss of shoreline ecological functions.

4.4.9 IN-STREAM STRUCTURES

Likelihood of development: Future in-stream structure development is anticipated to occur on a very limited basis, if at all.

Application of the SMP: Instream structures often modify flows, which can result in alterations to circulation patterns, water quality, and habitat access and conditions. The SMP permits in-stream structures in the Commercial environment. On other shorelines, in-stream structures require a shoreline conditional use permit, except for structures that protect, restore, or monitor ecological functions or processes. In-stream structures must provide for the protection and preservation of ecosystem-wide processes and ecological functions, including, but not limited to, fish and fish passage, priority habitats and species, other wildlife and water resources, shoreline critical areas, and hydrogeological processes.

4.4.10 MINING

Likelihood of development: Mining is not a current or anticipated use in Chehalis's shorelines.

Application of the SMP: Mining is a prohibited use on Chehalis shorelines.

4.4.11 RECREATIONAL DEVELOPMENT

Likelihood of development: Existing recreational development on Chehalis shorelines includes low-intensity uses such as trails and shoreline accesses. Future recreational activity is expected to be of a similar nature.

Application of the SMP: Recreational development can result in increased impervious surfaces, increased use of pesticides and fertilizers, and increased potential for riparian degradation. Recreational development shall demonstrate achievement of no net loss of ecological functions.

4.4.12 RESIDENTIAL DEVELOPMENT

Likelihood of development: Residential development is currently present in the City's shoreline jurisdiction. While the potential for new residential development exists, such development would generally confront constraints including, wetlands, and floodplains. These same constraints, in conjunction with the already subdivided nature of shorelines in several areas and existing zoning limitations, further limit the potential for subdivision within shoreline jurisdiction. Redevelopment of existing residential development is expected to occur.

Application of the SMP: Residential development is associated with an increased potential for water quality contamination from use of lawn and garden products and the disturbance of riparian corridors. Regulation requires that new residential lots created through land division ensure that no net loss of ecological functions results at full build-out of lots, and that the need for new shoreline stabilization or flood hazard reduction measures is prevented. Moreover, all residential development must result in no net loss of shoreline ecological functions. Residential development must be sufficiently set back from steep slopes and shorelines vulnerable to erosion so that structural improvements are not required to protect such structures and uses during the life of the development. Residential development also must comply with buffer and critical area requirements, which provide additional protection for natural resources. Future anticipated regulatory changes to the City of Chehalis Stormwater Management regulations contained in CMC Titles 12 and 15, will further regulate and protect shoreline areas.

4.4.13 SHORELINE HABITAT & NATURAL SYSTEMS ENHANCEMENT PROJECTS

Likelihood of development: Details on the potential for shoreline habitat and natural systems enhancement projects will be provided in the forthcoming Shoreline Restoration Plan.

Application of the SMP: Policies identifies the intent to foster shoreline habitat and natural systems enhancement projects. Such projects must be carried out in accordance with an approved shoreline restoration plan. Shoreline habitat and natural systems enhancement projects must also be designed using the best available scientific and technical information, and implemented using best management practices. Long-term maintenance and monitoring must also be included.

4.4.14 SHORELINE STABILIZATION

Likelihood of development: Shoreline stabilization is concentrated in the Port area. New shoreline stabilization is not anticipated to commonly occur.

Application of the SMP: Shoreline stabilization measures tend to result in the simplification of shoreline habitat complexity and increased flow velocities along the shoreline. The occurrence of new stabilization measures will be limited as new development must be located and designed to avoid the need for future shoreline stabilization, if feasible (regulation 7.17[2]A), and new or enlarged stabilization is only allowed under certain circumstances (regulation 7.17[3]). Soft approaches must be used unless demonstrated not to be sufficient to protect primary structures, dwellings, and businesses (regulation 7.17[7]A). All proposals for shoreline stabilization structures must not result in a net loss of ecological functions (regulation 7.17[7]C), and must be the minimum size necessary (regulation 7.17[7]B).

An existing shoreline stabilization structure, hard or soft, may be replaced with a similar structure if there is a demonstrated need to protect principal uses or structures from erosion caused by currents or waves. However, additions to or increases in size of existing shoreline stabilization measures shall be considered new structures (regulation 7.17[4]).

Repair and maintenance of existing shoreline stabilization measures may also be allowed. As with replacement, any additions to or increases in the size of existing shoreline stabilization measures shall be considered new structures. Areas of temporary disturbance within the shoreline buffer shall be expeditiously restored to their pre-project condition or better (regulation 7.17[5]).

4.4.15 TRANSPORTATION & PARKING

Likelihood of development: Existing roads are the most common transportation feature in the City's upland shoreline jurisdiction. New transportation facilities, such as accessory roads, could be constructed; however, the replacement, repair, and maintenance of existing transportation infrastructure is expected to be the most common form of transportation development activity.

Application of the SMP: New transportation and parking facilities may be associated with increased stormwater discharge, increased shoreline crossing structures, and riparian disturbance. The SMP limits development of new or expanded roads as well as parking within shoreline jurisdiction, if other options outside of shoreline jurisdiction are available and feasible (regulations 7.18[1]A and 7.18[2]B). When transportation and parking facilities are unavoidable, proposed transportation facilities must be planned, located, and designed to minimize possible adverse effects on unique or fragile shoreline features and maintain no net loss of shoreline ecological functions (regulation 7.18[1]).

4.4.16 UTILITIES

Likelihood of development: Regular maintenance and repair of existing utilities would be the most likely form of utility development.

Application of the SMP: Utilities have the potential to disrupt shoreline functions through associated shoreline armoring; the potential for spills or leakage; and disturbance to riparian vegetation. Under the proposed SMP, transmission lines, cables, pipelines, and nonwater-oriented components of production and processing facilities must be located outside of shoreline jurisdiction, where feasible (regulation 7.19[3]). Utilities shall be located in existing rights-of-way and corridors whenever possible (regulation 7.19[4]). Utility projects allowed within shoreline jurisdiction shall be designed to achieve no net loss of shoreline ecological function (regulation 7.19[6]), including the requirement that any areas disturbed during construction or maintenance must be regraded and revegetated to compatibility with the natural terrain (regulation 7.19[7]).

5 NO NET LOSS ANALYSIS

This CIA anticipates that based on previous trends, as well as that much of the undeveloped land in the City's shoreline jurisdiction is constrained by the presence of critical areas, future development activity in Chehalis's shoreline jurisdiction would be limited in terms of location and extent. Future development activities in shoreline jurisdiction may include new development, but is more likely to be the redevelopment, expansion, repair and maintenance of existing development.

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

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

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

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