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CUMULATIVE IMPACTS ANALYSIS

City of Ilwaco Shoreline Master Program

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CUMULATIVE IMPACTS ANALYSIS

CITY OF ILWACO SHORELINE MASTER PROGRAM

1 INTRODUCTION

1.1 Background & Purpose

This Cumulative Impacts Analysis (CIA) is a required element of the City of Ilwaco (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 draft version of the City's SMP (dated April 2015) would address adverse environmental impacts such that no net loss of ecological functions would result over a 20-year planning horizon. The baseline against which changes in ecological function are evaluated is the current shoreline conditions, as documented in the Shoreline Analysis Report (The Watershed Company 2015). 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 draft SMP on shoreline ecological functions given anticipated future development. Finally, Section 5 recaps the information in previous sections and features concluding remarks.

2 SUMMARY OF EXISTING CONDITIONS

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

In Ilwaco, the Columbia River, Wallacut River, Black Lake, and Pacific Ocean qualify as Shorelines of the State. The City's shoreline jurisdiction covers approximately 291 acres of uplands spread across approximately 8.2 miles of shoreline.

Much of Ilwaco's shoreline jurisdiction is undeveloped or has limited development. Undeveloped shorelines provide well-vegetated riparian and wetland habitats, as well as productive salt marsh areas within Baker Bay. In total, jurisdiction includes 173.5 acres of wetlands and 134 acres of associated salt marsh. These areas support concentrations of shorebirds and waterfowl, bald eagles and marbled murrelets, and numerous anadromous and resident fish species.

Major land uses in the City's shoreline jurisdiction include government/institutional (34%), vacant/undeveloped (23%), residential (14%), and recreation (4%). The City features multiple shoreline public access opportunities. The Port of Ilwaco (Port) features a variety of water-dependent and water-related uses.

Consistent with its comparatively small size, development activity in Ilwaco is relatively limited. For the most recent five years for which complete data were available, the number of building permit applications by year ranged from 7 to 41. These data include all types of building permits (e.g. from the installation of wood stoves to the construction of new houses).

Please see the Shoreline Analysis Report, particularly Chapters 3 and 4, for more information on existing conditions in the City's shoreline jurisdiction.

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 at length in Chapter 2 of the Shoreline Analysis Report. Key regulatory programs identified in the Shoreline Analysis 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
	Critical areas regulations
State	Shoreline Management Act
	Hydraulic Code
	Clean Water Act – Section 401
	Article XV of the Constitution of the State of Washington, Harbors and Tide Waters
Federal	Rivers and Harbors Act
	Clean Water Act – Section 402 and Section 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 Analysis 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 draft SMP on shoreline ecological functions given anticipated future development. As discussed in Section 2, consistent with its comparatively small size, development activity in Ilwaco has been relatively limited in recent years. Based on previous trends, as well as that much of the undeveloped land in the City's shoreline jurisdiction is publicly owned or otherwise constrained by the presence of steep slopes, floodplains, or wetlands, future development activity in Ilwaco's shoreline jurisdiction is anticipated to be limited in terms of location and extent. Future development activities in shoreline jurisdiction should be expected include new development, and the redevelopment, expansion, repair and maintenance of existing development.

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

- *Environment designations:* Shoreline environment designations are based on existing shoreline conditions. Allowed uses focus 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 protect shoreline critical areas in accordance with 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. Regulations include buffers for Shorelines of the State.
- *Mitigation sequencing:* SMP standards require applicants to avoid, minimize, and then compensate for unavoidable impacts to shoreline functions. Where SMP standards do not provide specific, objective measures that clarify avoidance, minimization, and mitigation measures, a mitigation sequencing analysis is required.
- *Shoreline use and modification regulations:* Specific regulations for shoreline uses and modifications ensure that potential impacts are regulated to avoid a net loss of ecological function.

4.1 Environment Designations

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

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

The draft SMP features four upland environment designations: High-Intensity, Shoreline Residential, Urban Conservancy and Natural. 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	A High-Intensity environment designation is assigned to shoreline areas that currently support high-intensity uses related to commerce, transportation or navigation; or are suitable and planned for high-intensity water-oriented uses.
Shoreline Residential	A Shoreline Residential environment designation is assigned to shoreline areas that are predominantly single-family or multifamily residential development or are planned and platted for residential development.
Urban Conservancy	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: • 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.

Environment Designation	Designation Criteria
Natural	A Natural environment designation is assigned to shoreline areas with any of the following characteristics: • The shoreline is ecologically intact and therefore currently performing an important, irreplaceable function or ecosystem-wide process that would be damaged by human activity; • The shoreline is considered to represent ecosystems and geologic types that are of particular scientific and educational interest; or • The shoreline is unable to support new development or uses without significant adverse impacts to ecological functions or risk to human safety.
Aquatic	An Aquatic environment designation is assigned to lands waterward of the ordinary high water mark.

Allowed uses in the upland 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. In contrast, the Natural environment is the most restrictive environment designation, prohibiting a variety of more intense uses.

4.2 Shoreline Critical Areas Regulations

The SMP, in Appendix B, 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.

Mitigation sequencing is required for all proposed impacts to shoreline critical areas, (Appendix B, regulation 1.F.2). Other key regulations that will help ensure no net loss of shoreline ecological function include standard buffers for wetlands and waterbodies, which are discussed below.

4.2.1 Wetland Buffers

The standard wetland buffer widths are based on wetland category, habitat score, and land use intensity, and vary from 25 to 300 feet. Use of the standard buffer widths assumes that the buffer is vegetated with a native plant community. If the existing

buffer is unvegetated, sparsely vegetated, or vegetated with invasive species that do not perform needed functions, the buffer should either be planted to create the appropriate plant community or be widened (Appendix B, regulation 2.G.2.b). 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. Additionally, the buffer at its narrowest point must never be less than either 75 percent of the standard width or 75 feet for Category I and II, 50 feet for Category III, and 25 feet for Category IV, whichever is greater (Appendix B, regulation 2.G.4).

4.2.2 Waterbody Buffers

Ilwaco's Shorelines of the State, as well as other waterbodies occurring in shoreline jurisdiction that do not qualify as Shorelines of the State, are regulated as fish and wildlife habitat conservation areas under the City's shoreline critical areas regulations.

Buffers for Shorelines of the State vary according to environment designation, as follows in Table 4-2 (Appendix B, Table B3-1). Buffers for Shorelines of the State required by the SMP 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.

Criteria for establishing buffers in specific areas include:

- Extent of riparian vegetation in proximity to the shoreline;
- Presence of critical areas and potential buffers;
- Proximity of existing development to the shoreline; and
- Lot depth.

Table 4-2. Buffers for Ilwaco's Shorelines of the State.

Water Type	Environment Designation	Buffer[1]	Structure Setback[1,2]
Type 1 (S)	High-Intensity A	NA	50 feet or the waterward line of impervious surface parallel to the shoreline
	High-Intensity B	75 feet	15 feet
	Shoreline Residential A	100 feet	15 feet
	Shoreline Residential B	75 feet	15 feet
	Shoreline Residential C	50 feet	15 feet
	Urban Conservancy	200 feet	15 feet
	Natural	200 feet	15 feet

[1] Buffer and setback do not apply to water-dependent uses.
[2] Structure setback measured from edge of buffer or from the ordinary high water mark if no buffer is required.

Buffers for other waterbodies occurring in shoreline jurisdiction that do not qualify as Shorelines of the State are 50 feet for nonfish-bearing waterbodies and 100 feet for fish-bearing waterbodies.

Buffer averaging is allowed under certain circumstances, including that buffer width is not reduced by more than 25 percent in any location. A critical area report is required. (Appendix B, regulation 3.D.1.c.ii).

Any vegetation removal in shoreline jurisdiction must also meet the regulations in Section 6.6, Vegetation conservation, which require that vegetation removal be limited to the minimum necessary and that mitigation sequencing be applied. Where vegetation removal results in adverse impacts to shoreline ecological function, new developments or site alterations are typically 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 can be applied to projects to ensure they achieve no net loss of ecological functions. In short, these measures are to avoid, minimize, and then compensate for unavoidable impacts to shoreline functions (the full

sequence is listed in regulation 6.3[3]). Mitigation sequencing applies to all projects in shoreline jurisdiction, and is incorporated into the SMP through multiple regulations in Section 6.3.

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

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

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

The application of mitigation sequencing standards will help 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.

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

4.4.1 Agriculture

Likelihood of development: Agriculture is not known to currently occur within the City's shoreline jurisdiction (while current land use data indicate that land at the northwest corner of Black Lake is currently used for agriculture, this land is reportedly used as a vacation rental property). However, given the historical presence of agriculture in the Ilwaco area, new agriculture—most likely on a small scale—could potentially occur within shoreline jurisdiction.

Application of the SMP: New agriculture would only be allowed in the Shoreline Residential environment. Buffers consistent with Appendix B, regulation 3.D.2.a, as well as any other standards applicable to the proposed use and any proposed modifications, would apply.

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 (regulation 7.3[1]). 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 (regulation 6.3[2]B). Authorization would be via the relatively more rigorous conditional use permit process, 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: Ilwaco includes a variety of boating facilities, mostly associated with the Port. Existing boating facilities include an 800-slip marina, piers and docks, and launching facilities. Construction of some additional boating facilities or the

renovation of existing boating facilities is expected to occur, particularly in connection with Port activities.

Application of the SMP: The SMP limits the potential for boating facilities outside of the High-Intensity environment and adjacent Aquatic areas. In the Urban Conservancy environment and adjacent Aquatic areas, the following boating facilities would be allowed at Black Lake only: new public boat launches and non-residential piers and docks. In the Shoreline Residential environment and adjacent Aquatic areas, boating facilities are prohibited.

Where allowed, boating facilities must be located, designed, and constructed to avoid or, if that is not possible, to minimize and mitigate impacts to ecological functions, critical areas resources such as fish habitats, and processes such as currents and littoral drift (regulation 7.5[5]A). Boating facility size must be restricted to the minimum necessary to meet the needs of the proposed use (regulation 7.5[5]B). Structures must be made of materials that have been approved by applicable state agencies (regulation 7.5[5]C.1). 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 (regulation 7.5[4]A).

4.4.4 Commercial Development

Likelihood of development: Existing commercial development on Ilwaco's shorelines is limited to the Port area and the western shoreline of Black Lake. Both of these areas are 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, commercial development is prohibited on Urban Conservancy shorelines, and nonwater-oriented, general commercial development that is not separated from the shoreline would require a shoreline conditional use permit in the High-Intensity and Shoreline Residential environments. Where allowed, commercial development must not result in a net loss of shoreline ecological functions (regulation 7.7[5]). Other pertinent SMP provisions would also apply, such as those in Section 6.6, Vegetation conservation.

4.4.5 Dredging & Dredge Material Disposal

Likelihood of development: Regular maintenance dredging is required in Baker Bay to maintain a 17-foot-deep federal navigation channel. Upland dredge material disposal

sites have been exhausted, and alternatives under consideration include extension of the existing site and/or development of a new flow lane placement site to return accumulated sediment into the natural littoral drift system.

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.

Maintenance dredging of established navigation channels is restricted to existing authorized location, depth, and width (regulation 7.8[3]B). 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 (regulation 7.8[5]B). Regulation 7.8(7)A 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: Much of the Port area on Baker Bay is composed of nearshore fill. However, new fill and excavation activities would most likely occur over relatively small areas throughout shoreline jurisdiction.

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 Port area. Additional undeveloped land is located in the Port area and could potentially be developed for industrial use. Development may be constrained by the presence of steep slopes and shoreline wetlands.

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 draft SMP includes provisions to minimize the effects of new or redeveloped industrial uses. New industrial uses are limited to High-Intensity shorelines, which restricts industrial activities to shorelines that have been impacted. Regulation 7.11(3) would require that industrial development be located, designed, constructed, and operated in a manner that provides for no net loss of shoreline ecological function. Regulation 6.7(2) 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: Existing in-stream uses that are not explicitly addressed by other specific use and modification provisions in the SMP include a tide gate on the Wallacut River. 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 High-Intensity 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. Per regulation 7.12(2), 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 Ilwaco's shorelines, with the exception of ocean beach mineral prospecting.

Application of the SMP: Mining is a prohibited use on Ilwaco shorelines, except for ocean beach mineral prospecting conducted under a valid Hydraulic Project Approval issued by the Washington State Department of Fish and Wildlife (regulation 7.13[1]).

4.4.11 Recreational Development

Likelihood of development: Existing recreational development on Ilwaco 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. Per regulation 7.14(4), 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, primarily along the City's Baker Bay and Wallacut River shorelines. While the potential for new residential development exists, such development would generally confront constraints including steep slopes, wetlands, and floodplains. These same constraints, in conjunction with the already subdivided nature of shorelines in several areas, zoning limitations, and the ownership status of larger parcels, 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 7.15(2) requires that new residential lots created through land division assure 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 (regulation 7.15[7]). 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 (regulation 7.15[4]). Residential development also must comply with buffer and critical area requirements, which provide additional protection for natural resources.

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: Policy 4.2.16(1) 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 (regulation 7.16[2]). 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 (regulation 7.16[3]). Long-term maintenance and monitoring must also be included (regulation 7.16[5]).

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 NET EFFECT ON ECOLOGICAL FUNCTION

This CIA anticipates that based on previous trends, as well as that much of the undeveloped land in the City's shoreline jurisdiction is publicly owned or otherwise constrained by the presence of steep slopes, floodplains, or wetlands, future development activity in Ilwaco's shoreline jurisdiction would be limited in terms of location and extent. Future development activities in shoreline jurisdiction should be expected include new development, and the redevelopment, expansion, repair and maintenance of existing development.

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

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

As part of a comprehensive SMP update, local jurisdictions are required to plan for the restoration of impaired shoreline functions. Such planning "should be designed to achieve overall improvements in shoreline ecological function over time, when compared to the status upon adoption of the master program" (WAC 173-26-201[2][f]). The forthcoming 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 Ilwaco. Furthermore, voluntary restoration actions in the forthcoming Shoreline Restoration Plan would provide the opportunity for Ilwaco's shorelines to be enhanced and restored in coming years.

6 REFERENCES

Council on Environmental Quality 1997. Considering Cumulative Effects under the National Environmental Policy Act. January 1997.

The Watershed Company. January 2015. Final Shoreline Analysis Report for Shorelines in the City of Ilwaco: Columbia River, Wallacut River, Black Lake, and Pacific Ocean. Prepared for the City of Ilwaco, WA.