

**WHITMAN COUNTY  
GRANT No. G1400494**

**CUMULATIVE IMPACTS ANALYSIS**

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**FOR THE CITY OF TEKOA SHORELINE MASTER PROGRAM**

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# CUMULATIVE IMPACTS ANALYSIS

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## CITY OF TEKOA SHORELINE MASTER PROGRAM

# 1 INTRODUCTION

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## 1.1 Background and Purpose

This Cumulative Impacts Analysis (CIA) is a required element of the City of Tekoa's (City of Tekoa) Shoreline Master Program (SMP) update process. The State Master Program Approval/Amendment Procedures and Master Program Guidelines (SMP Guidelines; WAC 173-26-186(8)(d)) state that, "To ensure no net loss of ecological functions and protection of other shoreline functions and/or uses, master programs shall contain policies, programs, and regulations that address adverse cumulative impacts and fairly allocate the burden of addressing cumulative impacts." The CIA is intended to demonstrate that an SMP will not result in degradation of shoreline ecological functions over a 20-year planning horizon. This CIA can help the City make adjustments where appropriate in its proposed SMP if there are potential gaps between maintaining and degrading ecological functions.

In accordance with the SMP Guidelines, this CIA addresses the following:

- i. "Current circumstances affecting the shoreline and relevant natural processes [Chapter 2 below and *Final Shoreline Analysis Report for Shorelines in Whitman County; the Cities of Colfax, Palouse, Pullman, Tekoa, and the Towns of Albion, Malden, and Rosalia* (The Watershed Company and Berk 2014)];
- ii. Reasonably foreseeable future development and use of the shoreline [Chapter 3 below and *Shoreline Analysis Report*]; and
- iii. Beneficial effects of any established regulatory programs under other local, state, and federal laws." [Chapter 4 below]

The CIA assesses the policies and regulations in the draft SMP to determine whether no net loss of ecological function will be achieved as new development occurs. The baseline against which changes in ecological function are measured is the current shoreline conditions documented in the *Shoreline Analysis Report*. For those projects or activities that result in degradation of ecological functions, the required mitigation must return the resultant ecological function back to the baseline. This is illustrated in Figure 1-1.

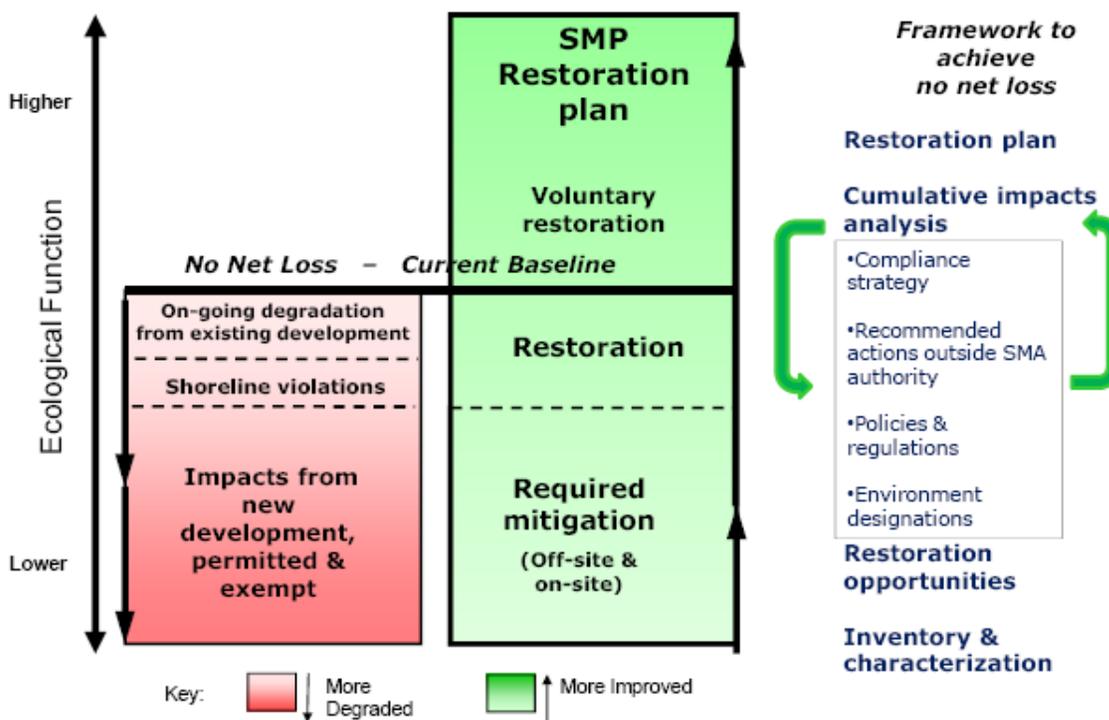


Figure 1-1. Framework for achieving no net loss of shoreline ecological functions (Source: Department of Ecology)

Despite SMP regulations that require avoidance, minimization, and mitigation for any unavoidable losses of function, some uses and developments cannot be fully mitigated. This could occur when mitigation is out-of-kind, meaning that it offsets a loss of function through an approach that is not directly comparable to the proposed impact. A loss of functions may also occur when impacts are sufficiently minor on an individual level, such that mitigation is not required, but are cumulatively significant. Unregulated activities (such as operation and maintenance of existing legal developments) may also degrade baseline conditions. Additionally, the City of Tekoa SMP applies only to activities in shoreline jurisdiction (see Figure 1-2), yet activities upland of shoreline jurisdiction or upstream in the watershed may have offsite impacts on shoreline functions.

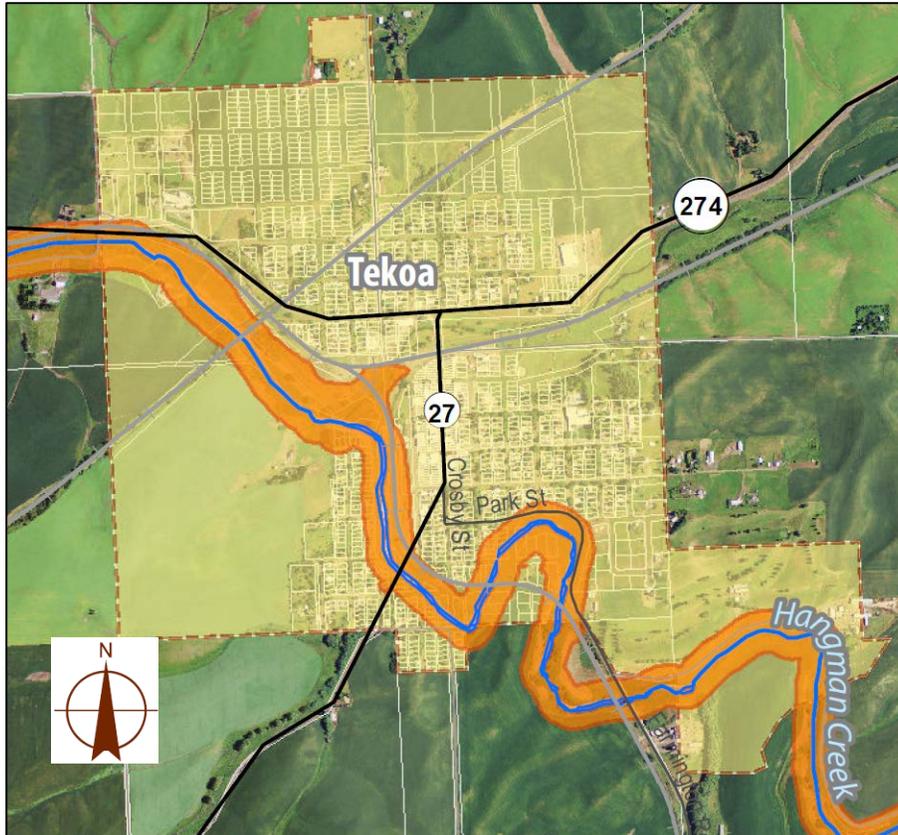


Figure 1-2. Tekoa shoreline jurisdiction (orange shading within the yellow city limits)

Together, these different project impacts may result in cumulative, incremental, and unavoidable degradation of the overall baseline condition unless additional restoration of ecological function is undertaken. Accordingly, the *Shoreline Restoration Plan* (The Watershed Company 2015) is intended to be a source of ecological improvements implemented voluntarily that may help to bridge a gap between minor cumulative, incremental, and unavoidable damages and ensure no net loss of shoreline ecological functions.

## 1.2 Approach

This CIA was prepared consistent with direction provided in the SMP Guidelines as described above. Existing conditions were first evaluated using the information, both textual and graphic, developed and presented in the *Shoreline Analysis Report*. Likely development identified in the *Shoreline Analysis Report* was addressed further to understand the extent, nature, and general location of potential impacts.

The effects of likely development were then evaluated in the context of SMP provisions, as well as other related plans, programs, and regulations. For the purpose of evaluating impacts, areas

with a likelihood of high densities of new development or redevelopment were evaluated in greatest detail. Cumulative impacts were analyzed quantitatively where possible. A qualitative approach was used where specific details regarding redevelopment likelihood or potential were not available at a level that could be assessed quantitatively or the analysis would be unnecessarily complex to reach a conclusion that could be derived more simply.

## 2 SUMMARY OF EXISTING CONDITIONS

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The following summary of existing conditions is based on the *Shoreline Analysis Report*. More detailed information on specific shoreline areas is provided in the *Shoreline Analysis Report*.

### 2.1 Ecological

The City of Tekoa is located in the Hangman (Latah) Creek<sup>1</sup> watershed (WRIA 56), in the northeast corner of Whitman County. Hangman Creek flows northwest through the City. The Hangman Creek watershed originates in the mountains in Idaho. Hangman Creek flows through sedimentary hills of sand, gravel and cobbles deposited during the Lake Missoula floods (Spokane County Conservation District (SCCD) 2005). Precipitation in the Hangman Creek watershed ranges from 18 inches per year at the mouth to over 40 inches per year in the southeastern headwaters SCCD 2005). Precipitation occurs primarily in the winter, and summers are dry. As such, flows are highest (over 200 cfs at the State line) in the winter months, and lowest (less than 1 cfs at the State line) in late summer.

Agriculture is the predominant land use in the upper and middle reaches of the Hangman Creek watershed. Removal of riparian vegetation has resulted in increased bank erosion and stream siltation. Forestry practices in the upper watershed have altered stream flows, increasing peak flows and lowering summer low-flows. Water quality is a concern in Hangman Creek. It is on the State's list of impaired waters (Category 5) for dissolved oxygen and has a Category 4a listing (has an approved TMDL in place) for bacteria, temperature and turbidity.

Riparian corridors along Hangman Creek support a variety of wildlife, including white-tailed deer, Rocky Mountain elk, moose, coyote, river otter, beaver, meadow vole, and deer mice (SCCD 2005). Birds commonly found in riparian habitats include great blue heron, kingfisher, yellow warbler, mallard, cinnamon teal, green-winged teal, wood duck, common merganser, western bluebirds, red-winged blackbirds, magpies and Canada geese. Bald eagles may

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<sup>1</sup> Note that Hangman Creek is also referred to as Latah Creek.

migrate through the Hangman Creek riparian corridor, but no known nesting sites have been reported (SCCD 2005).

Native trout and salmon populations that were once documented in Hangman Creek have decreased substantially as a result of dams, loss of habitat, and water quality degradation. Corresponding with habitat degradation and temperature increases, more tolerant fish species, such as sculpin and redbreast shiners, have apparently expanded their distribution and increased their population (SCCD 2005). There are no ESA-listed salmonids or priority fish species documented in Hangman Creek through Tekoa.



For the purposes of the *Shoreline Analysis Report*, four reaches of Hangman Creek were delineated through the City of Tekoa. A qualitative reach ranking of hydrologic, vegetative, habitat, and hyporheic functions provided a broad scale description of function (See Table 5-21 in the *Shoreline Analysis Report*). The highest functioning reaches are the rural residential area in the western portion of shoreline jurisdiction and the open space area in the southern end of the City. These areas have no armoring and good connectivity exists between the channel and extensive floodplain. An area of narrow but dense herbaceous vegetation is present along the channel with occasional shrubs and trees providing filtration and stabilization functions. Vegetated riparian areas also help slow and disperse flood flows.

The most impaired function is found in the commercial and urban residential area between approximately Ramsey Street and Bridge Street. This reach has a limited riparian area and shorelands that are dominated by residential and commercial development. Some trees and shrubs are present but are predominantly in a developed residential area, and are separated from the stream bank by Water Street.

## 2.2 Land Use

### *Current Land Use*

Tekoa has a population of 791. Shoreline jurisdiction includes approximately 102.44 acres, most of which contains open space and agriculture. It also contains some residential development along Water Street and some industrial development along South Ramsey Street. Tekoa's

wastewater treatment facility is also located in the shoreline, in the northwest section of town on the south shore of Hangman Creek. All land within the shoreline jurisdiction is privately owned.



### *Zoning*

Residential zoning is the most common zoning in shoreline jurisdiction. Industrial and commercial zoning also occur.

### *Water-Oriented Uses*

Water-oriented uses within Tekoa are limited. Hangman Creek is not commercially navigable. Waters are typically too shallow to allow water transportation. The wastewater

treatment facility and outfall to the creek are considered water-oriented.

### *Transportation*

Local roads are present throughout shoreline jurisdiction. A railroad and Highway 27 are also present and cross Hangman Creek.

### *Public Access*

The Tekoa Golf Course is a public course located on Hangman Creek, providing visual access to the shoreline.

### *Historic and Archaeological Sites*

There are 17 structures that are fifty or more years old within the shoreline reaches of the City of Tekoa.

## **3 REASONABLY FORESEEABLE FUTURE DEVELOPMENT**

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This section considers potential future development within and along the shoreline of the City of Tekoa. Consistent with the State Guidelines, the analysis will “address the cumulative impacts on shoreline ecological functions that would result from future shoreline development and uses that are reasonably foreseeable” (WAC 173-26-201(3)(d)(iii)). Reasonably foreseeable development is defined as development that is likely to occur during the next 20 years based on

the proposed shoreline environment designations, proposed land use density and bulk standards, and current shoreline development patterns. Development potential is discussed qualitatively.

The City of Tekoa has been declining in population since 2001. There was a significant jump in population from 1993 to 1994, but the population has in general remained between 780 and 820 people. Based on growth trends, significant new private development is unlikely in the near future, although 37% of shoreline jurisdiction along Hangman Creek is undeveloped.

Hangman Creek flows through Tekoa from the southeast to the northwest side of the City, passing through residential to the industrial core of the city and back out through residential areas. Zoning and proposed shoreline environment designations control the capacity of land for development in the shoreline jurisdiction. The majority of zoning in shoreline jurisdiction is either rural or urban residential, with some industrial and commercial zoning within shoreline.

According to City staff, the City is planning for a new truck route that would provide a flatter route through town. The new route would begin at Poplar Street, cross Little Hangman Creek, and proceed through town on a new road to the Ramsey Street Bridge. The new road would be constructed parallel to Crosby Street and would be in the High Intensity environment within shoreline jurisdiction.

The City is also planning a road improvement project on Park Street. The project would likely include widening the road and installing a new sewer line. Some of the work would take place in shoreline jurisdiction. In the future, the City may be replacing sewer lines, some of which are in shoreline jurisdiction, when funding is available.

No other future uses or developments have been identified. No new water-oriented uses are expected. There are limited water-oriented development opportunities in Tekoa given that Hangman Creek is not commercially navigable as it runs through the City of Palouse. Activities such as boating, fishing and swimming are limited and only occur informally during times when the Palouse is running high.

## **4 EFFECTS OF ESTABLISHED PROGRAMS**

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### **4.1 Current County Regulations and Programs**

All development activity within the City is required to comply with the Tekoa Municipal Code (TMC). Provisions in the TMC that potentially affect how future development is implemented and the extent of potential ecological impacts include critical areas and zoning regulations. The

following are descriptions of these relevant regulations and how they help to maintain shoreline functions.

### *Critical Areas Regulations*

City regulations applicable to critical areas are contained in Ordinance 764, which amends Tekoa Municipal Code Chapter 4.24, Critical Areas Protection. These regulations from 2007 require wetland buffers of between 50 and 250 feet based solely on wetland category (TMC 4.24.050.C). No stream buffer widths are specified, although the regulations require preparation of a habitat management plan based on best available science and a demonstration that a project would not degrade functions and values of the habitat (TMC 4.24.070). The City's critical areas regulations also apply to geologically hazardous areas, critical aquifer recharge areas, and frequently flooded areas.

### *Zoning Code*

City zoning standards direct the location of uses, building bulk, and scale. These standards are important in planning for future growth and focusing development in a sustainable manner. The most prominent zoning designation present in shoreline jurisdiction is Rural Residential, however a variety of other designations are also present including Urban Residential, Industrial, and Parks and Recreation. Each zone has different permitted uses which help to concentrate development in areas appropriate and suitable for similar uses (TMC Chapter 4.16).

## **4.2 State Agencies/Regulations**

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

### *Washington Department of Natural Resources*

Projects on state-owned aquatic lands may be required to obtain an Aquatic Use Authorization from Washington Department of Natural Resources (WDNR) and enter into a lease agreement. WDNR will review lease applications to determine if the proposed use is appropriate, and to ensure that proposed mitigation for impacts to aquatic resources are sufficient.

### *Washington Department of Ecology*

The Washington Department of Ecology may review and condition a variety of project types, including any project that needs a permit from the U.S. Army Corps of Engineers (see below), any project that requires a Shoreline Conditional Use Permit or Shoreline Variance, and any project that disturbs more than 1 acre of land. Project types that may trigger Ecology involvement include shoreline modification proposals and wetland or stream modification proposals, among others. Ecology's three primary goals are to: 1) prevent pollution, 2) clean up pollution, and 3) support sustainable communities and natural resources (<http://www.ecy.wa.gov/about.html>). Ecology may comment on local SEPA review if it is an agency of jurisdiction.

### *Washington Department of Fish and Wildlife*

Via the Hydraulic Code (chapter 77.55 RCW), the Washington Department of Fish and Wildlife (WDFW) has the authority to review, condition, and approve or deny "any construction activity that will use, divert, obstruct, or change the bed or flow of state waters." Practically speaking, these activities include, but are not limited to, installation or modification of outfalls, shoreline stabilization measures, culverts, and bridges. WDFW typically conditions such projects to avoid, minimize, and/or mitigate for damage to fish and other aquatic life, and their habitats.

## **4.3 Federal Agencies/Regulations**

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

### *Clean Water Act*

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

Section 404 provides the Corps, under the oversight of the U.S. Environmental Protection Agency, with authority to regulate "discharge of dredged or fill material into waters of the

United States, including wetlands”

([http://www.epa.gov/owow/wetlands/pdf/reg\\_authority\\_pr.pdf](http://www.epa.gov/owow/wetlands/pdf/reg_authority_pr.pdf)). The extent of the Corps’ authority and the definition of fill have been the subject of considerable legal activity. As applicable to the City’s shoreline jurisdiction, however, it generally means that the Corps must review and approve many activities in streams, lakes and wetlands. These activities may include wetland fills, stream and wetland restoration, and culvert installation or replacement, among others. The Corps requires projects to avoid, minimize, and compensate for impacts.

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

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

### ***Endangered Species Act (ESA)***

Section 9 of the ESA prohibits “take” of listed species. Take has been defined in Section 3 as: “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” The take prohibitions of the ESA apply to everyone, so any action that results in a take of listed fish or wildlife would be a violation of the ESA and is strictly prohibited. Per Section 7 of the ESA, activities with potential to affect federally listed or proposed species and that either require federal approval, receive federal funding, or occur on federal land must be reviewed by the National Marine Fisheries Service (NOAA Fisheries) and/or U.S. Fish and Wildlife Service (USFWS) via a process called “consultation.” Activities requiring a Section 10 or Section 404 permit also require such consultation if these activities occur in waterbodies with listed species.

### ***Northwest Power Act***

The Northwest Power Act was passed in 1980 as a component of the Federal Power Act. The Act seeks to ensure that the hydropower production is balanced with the maintenance of healthy fish and wildlife populations in the Columbia Basin, including salmon and steelhead. The Act establishes the Northwest Power and Conservation Council and directs the Council to

adopt a regional energy conservation and electric power plan and a program to protect, mitigate and enhance fish and wildlife in the Columbia and Snake Rivers and their tributaries.

## 5 APPLICATION OF THE SMP

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This section describes how the proposed SMP protects shoreline functions. 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 below.

- 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.
- 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 critical areas regulations are consistent with recommended state guidance to maintain ecological functions.
- Specific policies and regulations governing shoreline uses and modifications ensure that potential impacts are regulated to avoid a net loss of ecological function, while also meeting the requirements of the Shoreline Management Act pertaining to public access, prioritization of shoreline uses, and private property rights.

### 5.1 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), 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.

Consistent with SMP Guidelines, the City's environment designation system is based on the existing use pattern, the biological and physical character of the shoreline, and community interests. The *Shoreline Analysis Report* provided information on shoreline conditions and functions that informed the development of environment designations. The proposed upland

environment designations include: High Intensity, Shoreline Parks, Shoreline Residential, and Urban Conservancy generally listed in order by decreasing intensity of allowed use. All areas waterward of the OHWM are designated Aquatic. Criteria for each environment designation are provided in Table 5-1.

Table 5-1. Environment designation criteria

Environment Designation	Classification Criteria
High Intensity	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 Parks	Areas where any of the following apply: <ul style="list-style-type: none"> <li>• They are within existing or planned public parks or public lands intended to accommodate public access and recreational developments;</li> <li>• They are suitable for water-related or water-enjoyment uses;</li> <li>• They are open space, floodplain or other sensitive areas that should not be more intensively developed;</li> <li>• They have potential for ecological restoration;</li> <li>• They retain important ecological functions, even though partially developed; or</li> <li>• They have the potential for development that is compatible with ecological restoration.</li> </ul>
Shoreline Residential	Areas that are predominantly single-family or multi-family residential development or are planned and platted for residential development.
Urban Conservancy	Those areas: <ul style="list-style-type: none"> <li>• Planned for development that is compatible with the principals of maintaining or restoring the ecological functions of the area,</li> <li>• Suitable for water-enjoyment uses,</li> <li>• That are open space or floodplains, or</li> <li>• That retain important ecological functions which should not be more intensively developed.</li> </ul>
Aquatic	Lands waterward of the ordinary high-water mark.

The majority (63%) of the shoreline area in Tekoa is designated as Urban Conservancy. Just less than a quarter of the shoreline area is designated as High Intensity and the remaining area is divided between Shoreline Residential and Shoreline Parks (Figure 5-1). Tekoa’s proposed environment designations reflect the generally rural-agricultural nature of the City’s incorporated area. However, along the creek is also where many of the City’s industrial and commercial uses are found. The environment designations appropriately focus potential high-intensity development activity in existing disturbed areas with higher levels of alterations and lower ecological functions compared to other reaches. Those existing disturbed shorelines are not likely to experience significant function degradation with incremental increases in new

development. The Urban Conservancy designation helps protect the less developed, more agricultural and rural shorelines where some shoreline functions are more intact. These occur primarily on the outskirts of the City. The Shoreline Parks designation protects open space and sensitive areas that are not suitable for more intense development, but which can provide public access and recreational enjoyment of the shorelines.

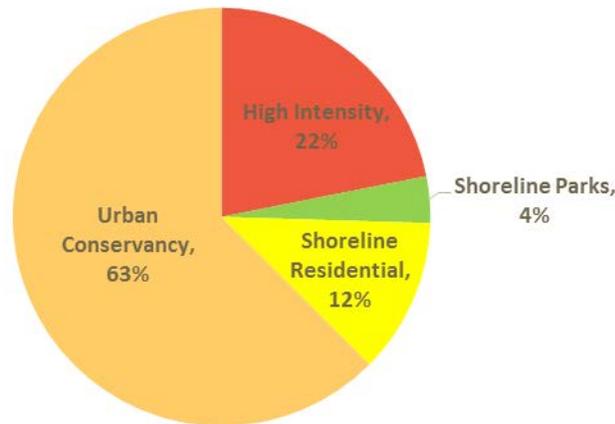


Figure 5-1. Distribution of upland environment designations in Tekoa by area

## 5.2 Effects of Critical Areas Regulations

The SMP includes policies and regulations to avoid cumulative effects to critical areas (SMP Appendix B). Mitigation sequencing is required for all shoreline critical areas including wetlands; fish and wildlife habitat conservation areas, including streams and riparian areas; critical aquifer recharge areas; frequently flooded areas; and geologically hazardous areas. SMP regulations proposed for wetlands and streams include standard buffer areas, which are discussed in greater detail below.

### *Wetlands*

The SMP requires vegetated buffers for all shoreline wetlands. Mitigation sequencing analysis (see Section 4.3) and compensatory mitigation are required for impacts to wetland buffers as well as to wetlands. The proposed standard wetland buffer widths are based on the wetland category and habitat scores and are consistent with Ecology's "Wetlands in Washington State- Volume 2: Guidance for Protecting and Managing Wetlands," modified to use with the 2014 Washington State Rating System for Eastern Washington (Granger et al. 2005). Use of the standard buffer widths also requires implementation of measures to minimize impacts of adjacent land use. If the prescribed minimization measures are not applied, the buffer width must be increased (Appendix B, Section 3.C). The SMP Administrator may increase buffer widths on a case-by-case basis if larger widths are determined to be necessary to protect certain

functions (Appendix B, Section 3.D). Buffer averaging is permitted provided 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 and that minimum buffer widths in Appendix B, Subsection 3.E(3-4) are met. The proposed SMP standards should ensure that wetland functions are maintained over time.

### *Streams*

Hangman Creek, as well as non-shoreline streams occurring in shoreline jurisdiction, are designated as Fish and Wildlife Habitat Conservation Areas. As such, buffers are required to protect riparian areas and stream function. Stream and stream buffer regulations are contained in the Fish and Wildlife Habitat Conservation Areas section of the critical areas regulations (Appendix B, Section 5). The buffer on Hangman Creek is developed to be consistent with existing conditions, as generally described as part of the *Shoreline Analysis Report*, and varies based on environment designation as follows (Appendix B, 5.3(D)(c)):

- In the Urban Conservancy environment designation, a buffer of the lesser of 100 feet or the waterward edge of an improved public road is proposed.
- In the Shoreline Residential environment designation, a buffer of 60 feet, or the waterward edge of an improved public road, is proposed.
- In the Shoreline Parks environment designation, the proposed buffer extends to the waterward edge of Golf Course Road.
- In the High Intensity environment designation, a buffer of 30 feet is proposed.

For all environment designations, water-dependent developments have no buffer due to the nature of the activity which necessitates that the development be adjacent to the shoreline. However, mitigation sequencing must still be followed which will ensure no net loss of function through compensation of unavoidable impacts (See Section 4.3).

For non-shoreline tributaries within shoreline jurisdiction, a buffer of 50 feet is proposed. Buffers on non-shoreline streams within shoreline jurisdiction help ensure that riparian functions are maintained at ecologically significant confluence areas.

Under certain circumstances the buffer width may be increased if the standard buffer is insufficient to protect the functions of the habitat area. Buffer width averaging may also be permitted under certain circumstances provided that the overall stream and habitat functions are not decreased (Appendix B, 5.D(3)(d and e)).

### 5.3 Mitigation Sequencing

The proposed SMP includes general regulations requiring projects to be designed, located, sized, constructed and maintained to achieve no net loss of shoreline ecological functions. The mitigation sequence is a series of measures that can be applied to a project to ensure that it achieves no net loss of ecological function (SMP Subsection 4.3(B)(3) and (4)). Mitigation sequencing applies to all projects in shoreline jurisdiction.

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

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

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

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

### 5.4 Effects of SMP Standards on Foreseeable Uses and Modifications

As discussed previously, WAC 173-26-186(8)(d) directs local SMPs to evaluate and consider cumulative impacts of “reasonably foreseeable future development on shoreline ecological functions.” 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 unanticipatable or uncommon impacts that cannot be reasonably identified at the time of master program development, the master program policies and regulations should use the permitting or conditional use permitting processes to ensure that all*

*impacts are addressed and that there is not net loss of ecological function of the shoreline after mitigation.*

Results of the analysis of foreseeable future development in Section 3 indicate that the most commonly anticipated changes in shoreline development involve the development of new roads, including rerouting the main truck route. These activities include upland development, and may also include the development of overwater structures, shoreline stabilization, utilities, and/or access roads. In addition to these changes, replacements, repair, and maintenance of existing structures are likely to occur. Additionally, even without a change in use, some level of change to vegetation and shoreline modifications may be anticipated.

The following sections summarize how these potential activities may impact ecological functions, and how SMP provisions address those potential effects to avoid cumulative impacts. Uses and modifications which are less likely to commonly occur, but which are also covered in the SMP, are also briefly discussed.

All of the potential new uses and modifications would be required to comply with the shoreline buffer provisions in Appendix B, 5.3(D)(c), discussed in Section 5.2 above.

### ***Agriculture***

*Likelihood of development:* Existing agriculture practices are likely to continue. New agriculture activities are less likely, but could possibly be proposed.

*Application of the SMP:* The SMP provisions do not limit or require modification to ongoing agricultural activities. New agricultural activities could have a number of potential impacts, including increased erosion from removal of trees or tilling of soil; alteration of ground water and base flows from irrigation; potential for livestock waste, pesticides, herbicides, and fertilizers to enter waterbodies through runoff; and/or reduction in native and riparian cover associated with conversion of lands to agricultural uses.

SMP provisions apply to new agricultural activities or expansion of such activities on land not meeting the definition of agricultural land and conversion of agricultural lands to non-agricultural uses. In such cases, shoreline buffers consistent with Appendix B, 5.3(D)(c), as well as other standards applicable to the proposed use and any proposed modifications would apply. Development in support of agricultural uses shall be consistent with the environment designation intent and management policies, located and designed to assure no net loss of ecological functions, and shall not have a significant adverse impact on other shoreline resources and values (Subsection 5.1(B)(8)).

### **Aquaculture**

*Likelihood of development:* There are no existing aquaculture facilities in the City, and no new aquaculture facilities are anticipated; however, it is possible that a new hatchery or associated rearing or transfer facility could be developed.

*Application of the SMP:* Aquaculture can result in a reduction in water quality from substrate modification, supplemental feeding practices, pesticides, herbicides, and antibiotic applications. Aquaculture structures can cause alteration in hydrologic and sediment processes. Accidental introduction of non-native species or potential interactions between wild and artificially produced species is also possible. Only non-commercial aquaculture may be permitted (Subsection 4.10, Shoreline Use and Modification Table). Any new aquaculture facility would need to be designed and located to avoid a net loss of ecological functions (Subsection 5.2(B)(1)(d)). Mitigation sequencing, as described above, would apply.

### **Boating Facilities**

*Likelihood of development:* Waters are typically too shallow in Hangman Creek to allow water transportation. The creek is not commercially navigable, and recreational facilities are not commonly anticipated, though could be proposed.

*Application of the SMP:* Boating facilities can alter currents and sediment transport, cause disturbance to riparian and aquatic vegetation, and increase the risk of contaminants (e.g. metals, petroleum hydrocarbons) entering the water.

Under the proposed SMP all over and in-water structures are prohibited, greatly reducing any potential impacts from increased shading in shallow-water habitat areas or leaching of chemicals. Soft boat launch areas for public or non-residential private use may be permitted. The SMP includes provisions to limit the effects of soft launch areas by ensuring that the location, design, and construction will minimize degradation of aquatic habitats (subsections 5.3(B)(3-5)). All proposals must provide impact mitigation at a minimum one-to-one ratio, by area, using one or more of a suite of potential mitigation actions (subsection 5.3(B)(9)).

### **Commercial Development**

*Likelihood of development:* Tekoa's shoreline environment does not have much commercial development. There is no known future commercial development that has potential to occur in the near future.

*Application of the SMP:* Common effects of commercial development include increased impervious surfaces, increased traffic, and vegetation clearing. Under the proposed SMP, water-oriented commercial uses are given more flexibility than non-water oriented commercial uses.

All types of commercial development shall be located, designed, and constructed in a way that ensures no net loss of shoreline ecological functions and without significant adverse impacts to other preferred land uses and public access opportunities.

### **Forest Practices**

*Likelihood of development:* Forestry practices are not a common shoreline use in Whitman County and do not currently occur in Tekoa.

*Application of the SMP:* The SMP prohibits all new forest practices (Section 4.10, Shoreline Use and Modification Table).

### **In Stream Structural Uses**

*Likelihood of development:* Existing in-stream uses in the City appear to be limited to those associated with existing agricultural practices. Maintenance and repair of existing structures is anticipated. New in-stream structures would likely be limited to new irrigation diversion or discharge structures.

*Application of the SMP:* The SMP permits in-stream structures that protect public facilities; protect, restore, or monitor ecological functions or processes; or support agriculture. All other structures are a conditional use, except in the High Intensity environment designation. In-stream structures must be the minimum size necessary and designed to avoid and then minimize potential adverse impacts. All unavoidable adverse impacts must be mitigated and all projects shall ensure no net loss of ecological function (5.5(B)(6)). Per Subsection 5.5(B)(1), in-stream structures must provide for the protection and preservation of ecosystem-wide processes, ecological functions, and cultural resources, including, but not limited to, fish and fish passage, priority habitats and species, other wildlife and water resources, shoreline critical areas, hydrogeological processes, and natural scenic vistas. In addition, natural in-water features, such as snags, uprooted trees, or stumps, shall be left in place unless it can be demonstrated that they are actually causing bank erosion or higher flood stages or pose a hazard to navigation or human safety (Subsection 5.5(B)(5)).

### **Mining**

*Likelihood of development:* Mining is not an existing use in shoreline jurisdiction. New mining is not anticipated.

*Application of the SMP:* The SMP prohibits all new mining (Section 4.10, Shoreline Use and Modification Table).

### ***Industrial Development***

*Likelihood of development:* A portion of Tekoa's shoreline is zoned Industrial and there are existing industrial uses in the form of agricultural-related industries.

*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 instream habitat. The SMP includes provisions to minimize the effects of new or redeveloped industrial uses. Industrial development is prohibited in the Urban Conservancy, Shoreline Residential, and Shoreline Parks environments (Section 4.10). Depending on whether the industrial use is water-oriented or not, the level of review for industrial development in the High Intensity and Aquatic environments varies (Section 4.10).

Subsection 5.6(B)(2)(a) would require that industrial development be located, designed, constructed, and operated in a manner that minimizes impacts to the shoreline, and provides for no net loss of shoreline ecological function. Additionally, industrial development and redevelopment shall be encouraged to locate where environmental cleanup and restoration of the shoreline area can be incorporated (5.6(B)(2)(f)).

### ***Recreational Development***

*Likelihood of development:* Current recreational development in Tekoa includes the public golf course, located on Hangman Creek. No future recreational development is known at this time.

*Application of the SMP:* Recreational development can result in increased impervious surfaces, increased use of pesticides and fertilizers, and increased potential for riparian degradation.

Water-oriented recreational development may be permitted by a Shoreline Substantial Development permit in all environment designations (Section 4.10). General nonwater-oriented recreational development is prohibited in urban conservancy and aquatic environments and conditional in the remaining environments (Section 4.10). Nonwater-oriented recreational developments that are separated from the shoreline would be permitted with a Shoreline Substantial Development Permit in all environments (except in the Aquatic environment, where this type of development is not applicable) (Section 4.10).

New development and redevelopment of water-oriented recreation structures are allowed in buffers provided the applicant can demonstrate that the design applies mitigation sequencing and appropriate mitigation is provided to ensure no net loss of ecological functions. Applicants must submit a management plan that specifically addresses compliance with Sections 4.3 (Environmental Protection), 4.4 (Shoreline Vegetation Conservation), 4.5 (Water Quality, Stormwater and Nonpoint Pollution), and Appendix B (Shoreline Critical Areas Policies and

Regulations). Improvements to existing park structures would likely be categorized as routine maintenance and repair activities, which does not require a Shoreline Substantial Development Permit (see Redevelopment, Repair, and Maintenance section below) and has little potential impact on shoreline functions.

### ***Residential Development***

*Likelihood of development:* Existing residential development is 7% of the shoreline in Tekoa. It is possible that some new residential development could occur in the future in the areas zoned Rural Residential.

*Application of the SMP:* New residential development is associated with an increase in stormwater runoff and water quality impacts resulting from an increase in impervious surfaces, greater potential for increased erosion, bank instability, and turbidity associated with vegetation clearing, loss or disturbance of riparian habitat during upland development and reduced shoreline habitat complexity and increased water temperatures. New single- or two-family developments are permitted in Urban Conservancy, Shoreline Residential, and High Intensity Environments. Single-family developments would be exempt from a Shoreline Substantial Development permit as long as it is in accordance with WAC 173-27-040(2)(g).

Subsection 5.8(B)(1) requires that new residential lots created through land division shall assure that no net loss of ecological functions result from the plat or subdivision at full build-out of lots and shall prevent the need for new shoreline stabilization or flood hazard measures. Similarly, new residential development shall meet all applicable critical area, vegetation, and water quality standards of the SMP; be sufficiently set back from steep slopes and shorelines vulnerable to erosion; and be located, designed, and constructed in a manner that assures no net loss of shoreline ecological functions. (Subsection 5.8(B)(2)).

### ***Transportation and Parking***

*Likelihood of development:* Existing transportation infrastructure includes local roads and bridges. New transportation facilities are anticipated in the form of a new truck route and other new roadway. Replacement, repair, and maintenance of existing and new facilities are likely to occur.

*Application of the SMP:* New transportation and parking facilities are associated with increased stormwater discharge, increased shoreline crossing structures, and riparian disturbance.

The SMP limits development of new transportation facilities or parking areas in shoreline jurisdiction if other options outside of shoreline jurisdiction are available and feasible (Subsection 5.9(B)(1) and (2)). When the applicant proposes to pave a roadway or parking area, the proposal shall comply with applicable water quality, landscaping, stormwater, and other

applicable requirements of this SMP and the Tekoa Municipal Code or any locally applicable regulations (Subsection 5.9 (B)(9)).

Repair and maintenance of transportation facilities are addressed below under “Redevelopment, Repair, and Maintenance.”

### **Utilities**

*Likelihood of development:* The City’s water and sewer lines run parallel to Hangman Creek and have been recently upgraded. No new utility development is known.

*Application of the SMP:* Utilities have the potential to disrupt shoreline functions through an associated need for shoreline armoring; the potential for spills or leakage; and disturbance to riparian areas. In order to limit the special extent of any impacts from new utilities, under Subsection 5.10(B)(1) of the proposed SMP, preference shall be given to utility systems contained within the footprint of an existing right-of-way or utility easement over new locations for utility systems. Utility projects allowed within shoreline jurisdiction shall be designed to achieve no-net-loss of shoreline ecological function, preserve the natural landscape, and minimize conflicts with present and planned land and shoreline uses while meeting the needs of future population in areas planned to accommodate growth (Subsection 5.10(B)(2)).

### **Redevelopment, Repair, and Maintenance**

*Likelihood of development:* As development already exists within shoreline jurisdiction, many future activities within will likely fall under the category of repair and maintenance. For example, roads, utilities, and structures all require regular maintenance and repair.

*Application of the SMP:* Potential impacts from repair and maintenance activities are generally temporary in nature, including such effects as turbidity and other temporary water quality impacts. Repair and maintenance activities are exempt from a Shoreline Substantial Development Permit, but SMP standards still apply. Therefore, ongoing maintenance and repair activities shall be conducted consistent with the SMP provisions. Where expansion or redevelopment is proposed, the required provisions shall be related to and in proportion to the proposal, as determined by the SMP Administrator (Subsection 5.11(B)(3)).

### **Breakwaters, Jetties, Weirs, and Groins**

*Likelihood of development:* Few, if any, new breakwaters, jetties, weirs or groins are anticipated. Infrequent repair and replacement of existing structures may be expected.

*Application of the SMP:* Breakwaters, jetties and groins are usually intended to alter currents or to deflect or dissipate wave energy. These structures have the potential to cause unintended impacts on natural bank erosion, sediment transport processes, and habitat.

Structures for all purposes other than to protect or restore ecological functions are permitted in all environment designations only as a conditional use. Where new structures are permitted, they must be the minimum size necessary, must be designed to protect critical areas, and implement mitigation sequencing to achieve no net loss of ecological functions (Subsection 6.2(B)(2-3)).

### ***Dredging and Dredge Material Disposal***

*Likelihood of development:* There are no known plans for new significant dredging or dredge material disposal. It is possible that smaller dredging projects could be proposed as part of other shoreline uses or developments.

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

Subsection 6.3(B)(3) requires that 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. Additionally, dredge disposal is only permitted if shoreline ecological functions and processes will be preserved, restored, or enhanced, and erosion, sedimentation, floodwaters, or runoff will not increase adverse impacts to shoreline ecological functions and processes or property (Subsection 6.3(B)(6)).

### ***Fill and Excavation***

*Likelihood of development:* Fill and excavation would most likely be proposed over relatively small areas of shoreline jurisdiction as part of other shoreline uses or modifications.

*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. Fill and excavation would likely occur over relatively small areas, such as areas associated with repair of existing shoreline stabilization measures.

All fills and excavations shall be located, designed and constructed to protect shoreline ecological functions and ecosystem-wide processes, including channel migration. Any adverse impacts to shoreline ecological functions must be mitigated (Subsection 6.4(B)(1)). Fills and excavations may only be permitted when associated with an approved use, and fills in wetlands, floodways, channel migration zones or waterward of the OHWM are further limited in application under the proposed SMP (Subsection 6.4(B)(2-3)).

### **Shoreline Restoration and Enhancement**

*Likelihood of development:* Several restoration opportunities were identified in the *Shoreline Restoration Plan*. Many of these opportunities originated in planning documents on a watershed scale and would require voluntary actions on the part of the shoreline land owners.

*Application of the SMP:* SMP Policy 6.5(A)(1) identifies the intent to promote restoration and enhancement actions that improve shoreline ecological functions and processes and target the needs of sensitive plant, fish and wildlife species. Shoreline restoration and enhancement projects must be designed using the best available scientific and technical information, and implemented using best management practices (Subsection 6.5(B)(2)). Long-term maintenance and monitoring must also be included in restoration or enhancement proposals (Subsection 6.5(B)(5)). In order to eliminate disincentives to restoration resulting from any landward shifts in the OHWM, relief may be granted under RCW 90.58.580 (Subsection 6.5(B)(6)).

### **Shoreline Stabilization**

*Likelihood of development:* New shoreline stabilization is not anticipated to commonly occur, but it is possible it may be proposed. Existing shoreline stabilization structures are not common, but repair and replacement of those that do exist are expected on a regular basis.

*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 because new development must be located and designed to avoid the need for future shoreline stabilization, if feasible (Subsection 6.6(B)(1)), and new stabilization shall only be permitted to protect an existing primary structure or new structure that cannot be placed so as to avoid the need for stabilization (Subsection 6.6(B)(4)). All proposals for shoreline stabilization structures, both individually and cumulatively, must not result in a net loss of ecological functions, and must be the minimum size necessary. Soft approaches shall be used unless demonstrated not to be sufficient to protect primary structures, dwellings, and businesses (Subsection 6.6(B)(3)).

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. While replacement of shoreline stabilization structures may meet the criteria for exemption from a Shoreline Substantial Development Permit, such activity is not exempt from the policies and regulations of the SMP (Subsection 6.6(B)(6)).

Repair and maintenance of existing shoreline stabilization measures may be allowed. Repair and maintenance includes modifications to an existing shoreline stabilization measure that are designed to ensure the continued function of the measure. Any additions to, increases in the

size of, or waterward encroachment 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. While repair and maintenance of shoreline stabilization structures may meet the criteria for exemption from a Shoreline Substantial Development Permit, such activity is not exempt from the policies and regulations of the SMP (Subsection 6.6(B)(7)).

## 5.5 Shoreline Restoration Plan

One of the key objectives that the SMP must address is “no net loss of ecological functions necessary to sustain shoreline natural resources” (Ecology 2011). Although the implementation of restoration actions to restore historic functions is not required by SMP provisions, the SMP Guidelines state that “master programs shall include goals, policies and actions for restoration of impaired shoreline ecological functions. These master program provisions should be designed to achieve overall improvements in shoreline ecological functions over time, when compared to the status upon adoption of the master program” (WAC 173-26-201(2)(f)).

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

Major *Shoreline Restoration Plan* components that are expected to contribute to improvement in ecological functions in the foreseeable future include projects to:

- Address impacts to existing riparian conditions by implementing livestock fencing and other actions that remove activities from the riparian corridor
- Re-establish riparian buffers with native plantings
- Implement best management practices and TMDL actions to improve water quality conditions

## 6 NET EFFECT ON ECOLOGICAL FUNCTION

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This CIA indicates that future growth is likely to be targeted in specific areas of the City. This analysis can help inform the county of potential future shoreline impacts and the importance of specific proposed SMP provisions.

The primary anticipated development includes development of new roads, including rerouting the main truck route and regular maintenance and repair of existing facilities.

The proposed SMP is expected to maintain existing shoreline functions within the City of Palouse while accommodating the reasonably foreseeable future shoreline development. Other local, state and federal regulations, acting in concert with this SMP, will provide further assurances of maintaining shoreline ecological functions over time. The *Shoreline Restoration Plan*, and actions described therein, will ensure that incremental losses that could occur despite SMP provisions do not result in a net loss of functions, and these restoration actions may result in a gradual improvement in shoreline functions.

As discussed above, major elements of the SMP that ensure no net loss of ecological functions fall into four general categories: 1) environment designations that focus development on specific areas with existing development and shoreline alterations; 2) shoreline critical areas regulations that protect sensitive areas through appropriate science-based buffers and limitations on new uses; 3) mitigation sequencing, which directs potential development to first avoid, then minimize, and finally mitigate for unavoidable impacts; and 4) shoreline use and modification provisions, which ensure that likely development is guided by regulations that will protect existing functions while allowing priority shoreline activities to occur. The *Shoreline Restoration Plan* identifies ongoing and planned voluntary restoration that will provide an opportunity to improve shoreline conditions over time.

Given the above 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 shorelines of the City of Tekoa**. Voluntary actions identified and prioritized in the *Shoreline Restoration Plan* will provide the opportunity to enhance and restore shoreline functions over time.

## 7 REFERENCES

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