WHITMAN COUNTY
GRANT NO. G1400494

CUMULATIVE IMPACTS ANALYSIS

FOR THE CITY OF PULLMAN SHORELINE MASTER PROGRAM

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October 2015

This report was funded in part through a grant from the Washington Department of Ecology.

The Watershed Company Reference Number:
130736

Cite this document as:

The Watershed Company. October 2015. Cumulative Impacts Analysis for the City of Pullman's Shoreline Master Program. Prepared for the City of Pullman.

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CUMULATIVE IMPACTS ANALYSIS

CITY OF PULLMAN SHORELINE MASTER PROGRAM

1 INTRODUCTION

1.1 Background and Purpose

This Cumulative Impacts Analysis (CIA) is a required element of the City of Pullman's (City) 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.

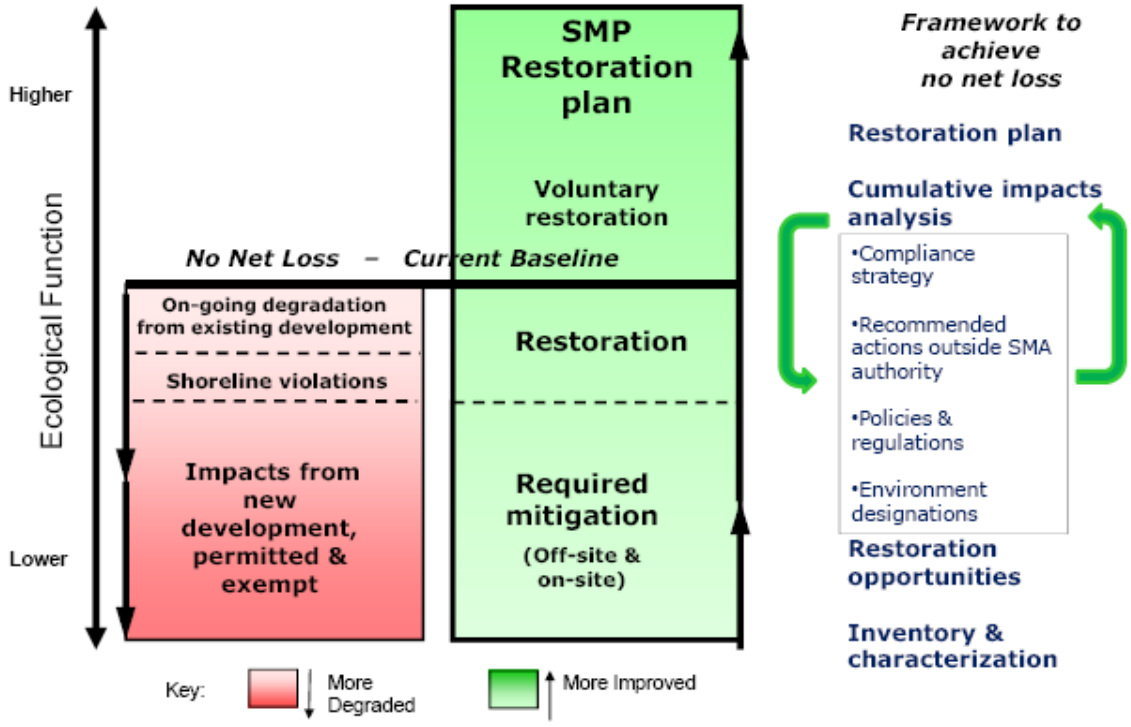

Figure 1-1. Framework for achieving no net loss of shoreline ecological functions (Source: Department of Ecology)

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 Pullman SMP applies only to activities in shoreline jurisdiction (Figure 1-2), yet activities upland of shoreline jurisdiction or upstream in the watershed may have offsite impacts on shoreline functions.

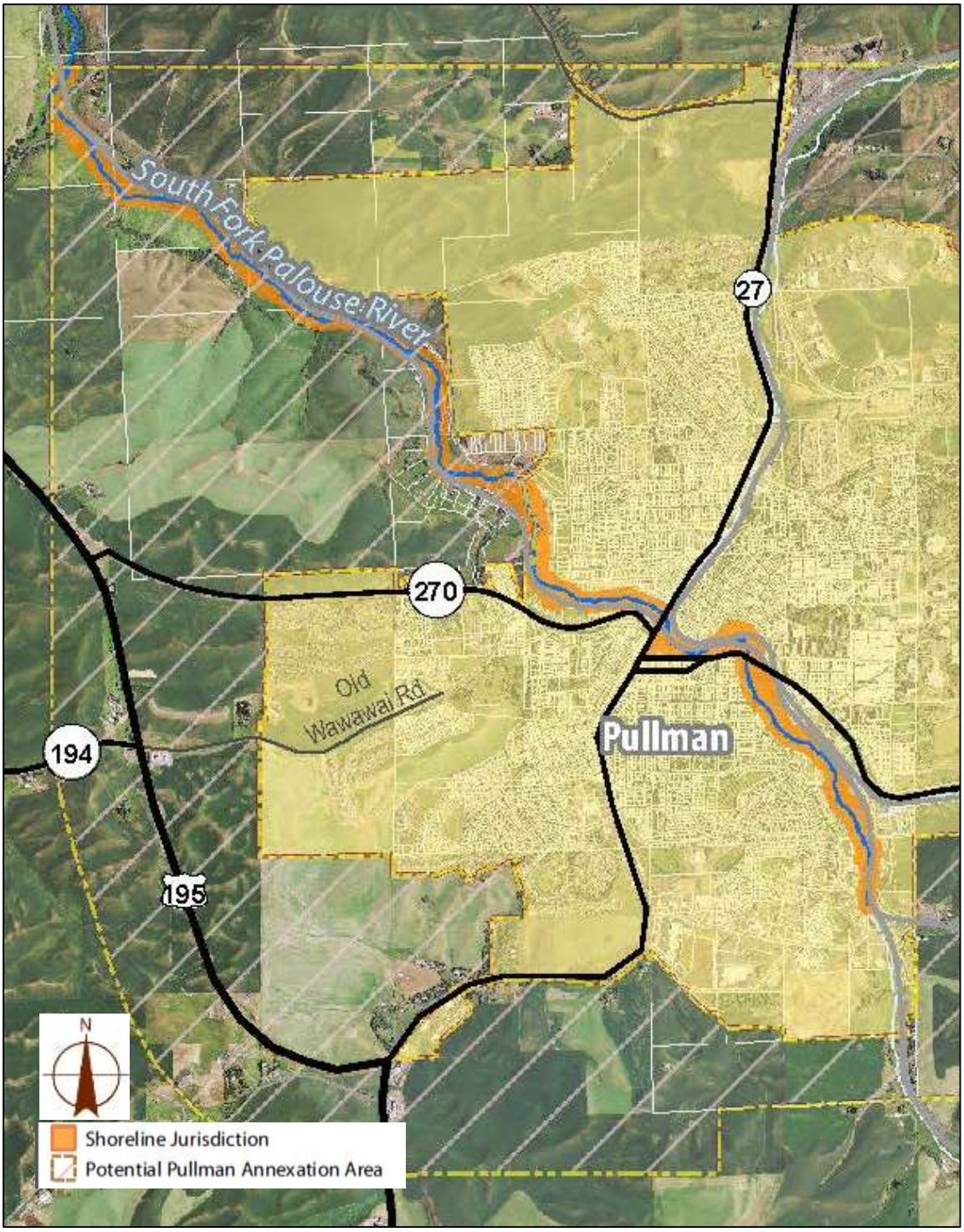

Figure 1-2. Pullman shoreline jurisdiction

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

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

Watershed Overview

The City of Pullman and its urban growth area is located in the Palouse watershed (WRIA 34), which covers the majority of Whitman County. The topography of the Palouse watershed transitions from mountainous terrain in Idaho to rolling hills composed of basalt covered with loess in the central portion of the watershed. The far western portion of the watershed is in an area called the Channeled Scablands. This area was shaped by massive floods over the past million years, which left behind exposed channels of the underlying basalt amongst islands of loess (HDR and EES 2007).

Precipitation primarily occurs in the winter months, and ranges from 10 inches in the west to 50 inches in the eastern portion of the watershed (HDR and EES 2007). Many of the smaller stream channels are dry in the summer. Major tributaries in the watershed include the North and South

Forks of the Palouse River, Rebel Flat Creek, Rock Creek, Pine Creek, Union Flat Creek and Cow Creek.

Historically, the dominant vegetation in the Palouse watershed was a bunchgrass association. Much of that vegetation has been converted to dryland agriculture or altered by rangeland uses. Soil erosion resulting from storm water runoff has been a continuing problem throughout WRIA 34 as a result of land conversions to agriculture. An estimated 40% of the topsoil in the Palouse has been lost to erosion during this time (HDR and EES 2007). Most livestock grazing occurs in the westernmost portion of the basin, within the Channeled Scablands. Urban development makes up a small portion of the watershed; however, several cities and towns are located directly adjacent to the Palouse River and its tributaries. Riparian areas have been significantly altered by land use in the South Fork Palouse subbasin, and many small intermittent streams have been converted to drainage ditches throughout the North and South Fork subbasins.

Water quality concerns are primarily from non-point sources throughout most of the watershed, including erosion, livestock, fertilizers, and septic systems, which contribute sediment, fecal coliforms, and nutrients. Temperature is also a concern in many of the waterbodies in the watershed.

Although there are no man-made dams on the Palouse River, the 185-foot Palouse Falls, approximately 6 miles upstream from the River's confluence with the Snake River, prevents anadromous salmon passage (Golder Associates, Inc 2009). There are no ESA-listed salmonids or other listed aquatic species above the Palouse Falls. Resident fish species above the falls include rainbow trout, brown trout, smallmouth bass, sculpin, largescale sucker, northern squawfish, shiner perch and speckled dace (HDR and EES 2007). Trout are less common in the lower portions of the watershed, presumably as a result of temperature and water quality constraints.

Throughout much of the Palouse watershed in Whitman County, riparian forest and shrub vegetation is limited. This occurs as a combination of naturally limited water sources, the basalt landscape, and topography. Additionally, riparian vegetation is often limited as a result of ongoing agricultural activity adjacent to the watercourse.

Pullman Shorelines

City

The South Fork of the Palouse River flows northwest through the City of Pullman. For the purposes of the *Shoreline Analysis Report*, shorelines were divided into five reaches. The first two reaches heading upstream (Industrial and Commercial/Business District) pass through the most

developed areas of the City, with a number of crossings, narrower riparian corridor, and high impervious surface. The next reach (Parks) contains more open space, active recreational lands, and scattered pockets of more intense commercial development. The most upstream reach is South Commercial. Similar to the Industrial reach, this reach has some intense commercial developments, but these are separated from the stream by wider riparian corridors generally. The Residential reach is composed of a number of scattered segments, most of which do not directly abut the river, but are separated from the river by other reaches.

Shorelines are most altered through the industrial and commercial areas which are closely bounded by railroad, trails, roads and other development. In the southern commercial area armoring is mainly limited to the road and trail crossing areas and the stream has good connectivity to significant floodplain and floodway. Similarly, the industrial reach at the northern end of the City has no obvious indicators of levees or armoring immediately adjacent to the channel. There appear to be some minor backwater/side-channels/wetland patches along the corridor, and a well-connected floodway and floodplain. Although much of the southern commercial area is altered, most of the stream length in the reach has a modest riparian area of herbaceous, shrubby and scattered tree vegetation. The vegetation appears to be maintaining stable banks. In the business district and industrial areas vegetation is limited to mostly weedy herbaceous species, with scattered patches of shrubs and a few trees which provides some filtration from surrounding development. The banks appear stable.

The highest functioning shorelines are found in the Parks and Residential reaches. The greatest amount of open space is found in these areas; however, there are also areas of intensive recreational uses and related modifications outside of the riparian buffer which affect function performance. There are also some areas of commercial development adjacent to the park areas. More than three-quarters of the Parks reach is floodplain. No armoring or levees and low banks in most places provide good connectivity to the floodplain. Although no wetlands are mapped in the reach, riverine wetland was observed on the west side of the stream west of the ball fields.

Relative to the other reaches, the area contains substantial riparian vegetation (much of it dense) and open spaces that may provide habitat for a variety of wildlife. The river is flanked by a variable width band of dense herbaceous, shrubby and tree vegetation, including a mix of deciduous and coniferous species (narrower in general on the side closest to park). The banks appear to be adequately stabilized in most places by vegetation. It is unknown what treatments may be applied to the ball fields and other formal park areas, but the riparian strip likely provides some good filtration.

Urban Growth Area

The South Fork of the Palouse River continues flowing northwest though the urban growth area just outside of the current City limits along Brayton Road until just north of Armstrong Road. (This area was identified in the *Shoreline Analysis Report* as the South Fork Palouse River County Reach 2- Agriculture.) Agricultural uses are the main modifications to shoreline function in this area. Hydrologic functions are generally the highest functions due to extensive floodplain and some floodway and generally good connections to the channel. Vegetative and habitat functions are more limited, due to alterations to riparian vegetation. However, development is much less intense than the South Fork reaches currently within the City limits.

Occasional trees and shrubs are present which provide some filtration and bank stabilization. Riparian vegetation widths are narrow in most areas and shorelands are dominated by agricultural uses. Roads parallel the river through much of this area and several overwater structures are also present. No PHS regions are mapped.

2.2 Land Use

City

Existing land use within the City's shoreline jurisdiction is a mix of uses. The most prevalent uses are transportation and utilities based on the presence of roads, the railroad and Pullman Transit property and other City utilities such as the wastewater treatment plant. Manufacturing and industrial uses are common uses west of SR 27. Commercial uses are common from North Grand Avenue east to NE Spring Street. Parks and open space are also a major component of the City's shoreline, particularly from North Grand Avenue to the southern city boundary. Residential areas are mapped intermittently throughout the City, although there are limited residences in shoreline jurisdiction. There is a mobile home park along SE Professional Mall Boulevard. The majority of land within shoreline jurisdiction is mapped as privately owned, with slightly more than 11 acres (7%) owned by Washington State University. This data does not include City-owned property, which a substantial portion of the shoreline is within.

Land within shoreline jurisdiction of the South Fork Palouse River is zoned for a variety of uses. The current land use pattern is generally consistent with current zoning. The shorelines along the northern portion of the South Fork Palouse are generally zoned Heavy Industrial. Much of the shoreline jurisdiction through the center of town is zoned Central Business District and General Commercial District. The area west of City Playfield is zoned low-density multi-family.

Water-Oriented Uses

Water-oriented uses within Pullman are limited. The South Fork Palouse River is not commercially navigable. Waters are typically too shallow to allow water transportation or many recreational uses such as swimming or fishing. Industrial uses were historically located along the shoreline because of flat, level terrain.

The most prevalent water-oriented use is public access. There are approximately 25 acres of identified parks and amusements within the City's shorelines. Water-enjoyment amenities include trails, ball parks, and viewpoints. Some of the commercial uses that are adjacent to the shoreline have windows that face the river or outdoor seating areas. The City's wastewater treatment plant is considered water-related and its outflow would be considered water-dependent. Other utility outfalls would also be considered water-oriented.

Transportation and Utilities

In general, there is a moderate amount of transportation infrastructure within the shoreline of the City of Pullman. The majority of the infrastructure for transportation is active rail. There are 2.5 miles of rail within shoreline reaches of the City. There are also 2.3 miles of road infrastructure within shoreline reaches of the City of Pullman. The roads are a mix of urban major collector, urban minor collector, and major roads including State Route 27 and State Route 270 which both cross the South Fork. There are approximately eight bridges within shoreline jurisdiction, including two bridges on state highways, five minor road bridges, and one active rail bridge.

Public Access

The City has several parks, open spaces and trails along the South Fork Palouse River. The following shoreline public access sites and trails are located within shoreline jurisdiction:

- **Bill Chipman Palouse Trail** is a 7-mile trail from Pullman to Moscow, Idaho. It is used for biking, in-line skating, and walking.
- **Grand Avenue Greenway** is a segment of the 8-mile Pullman Loop Trail, which circles Pullman's College Hill neighborhood and the Washington State University campus. The trail begins downtown at the Pufferbelly Depot, where three railroad tracks converge, and follows the tracks to NW Terre View Drive. The route provides a view of Missouri Flat Creek and easy access to the Terre View Trail.
- **Spring Street Park** is 2.75 acres. The park includes a skateboard facility, public restrooms, and a link to the Bill Chipman Palouse Trail.
- **City Playfields** are 8.66 acres in size. There are three softball fields, a jogging track, exercise stations, volleyball standards, a batting cage, picnic tables, drinking fountains and restrooms.
- **Reaney Park** is a 1.64-acre park south of NE Morton Street. It contains a public swimming pool and playground. The park is separated from the river by the BNSF railroad.
- **Community P-Patch** is a public 3-acre community garden was founded on the old Koppel Farm estate on SE Derby Street. It has 110 plots that are utilized by members. The garden property is partially within shoreline jurisdiction. (City of Pullman 2014)

Urban Growth Area

In 2011, Pullman adopted a 50-year growth plan to ensure adequate supply of land available for future development. The total land mapped within shoreline jurisdiction for those areas designated for annexation by 2060 is 155 acres. Existing land use within the Pullman urban growth area's shoreline is mostly rural in character and consists mainly of agricultural uses. Approximately 85% of the land is agricultural land classified under its current use (chapter 84.34 RCW), 8% is used for educational services, and small portions of the urban growth area's shoreline is currently used for parking and single-family residential, with some undeveloped land.

Land in Pullman's urban growth area is currently predominantly zoned by Whitman County as Agricultural (77%), with a notable amount of Cluster Residential District (13%). Other zones within the urban growth area include the Pullman-Moscow Corridor District (3%) and the Heavy Industrial District (1%). The current land use pattern is generally consistent with current zoning. Upon annexation, the shoreline will likely be zoned as low-density residential.

Water-Oriented Uses

Water-oriented uses within Pullman are limited. The South Fork Palouse River is not commercially navigable. Waters are typically too shallow to allow water transportation or many recreational uses such as swimming or fishing. Water-oriented uses along the South Fork shoreline include agriculture, of which the vast majority of the urban growth area's shoreline jurisdiction is used.

Transportation and Utilities

Transportation in the urban growth area includes 9.85 miles of railroad, owned and operated by Washington and Idaho Railroad (6.63 miles), Blue Mountain Railroad (2.97 miles), and BNSF Railway (.26 miles). There are 9.34 miles of state and federal roadway and 14.34 miles of non-state roadway.

There are six bridges in the urban growth area's shoreline jurisdiction.

Public Access

There are no known public access opportunities in the urban growth area.

3 REASONABLY FORESEEABLE FUTURE DEVELOPMENT

This section considers potential future development within and along the shorelines of the City of Pullman. 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.

Although there are 18.7 acres of undeveloped land in the City's shoreline, based on conversations with City staff, there are limited likely new developments (Pete Dickinson, City of Pullman, personal communication). 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 commercial or industrial, with some

residential zoning. The nature of the environment designations is not expected to change significantly over the next 20 years within Pullman's current boundaries. However, an annexation of unincorporated land may create notable changes in density on that land, which is proposed as a Shoreline Residential environment.

City

Residential

Residential zones in shoreline jurisdiction include the Low Density Multi-Family Residential District, Medium Density Multi-Family Residential District, the High Density Multi-Family Residential District, and the Manufactured Home Park Overlay District.

There is a small amount of undeveloped land in the Shoreline Residential environment that is zoned Low Density Multi-Family (R2) along the left bank of the Palouse River near the north end of the City. The R2 zone is intended for small-scale multi-family developments with a maximum density of up to 15 units per acre.

Land that has potential for redevelopment includes a property near the intersection of SE Johnson Avenue and SE Bishop Boulevard, on the west side of the River, south of the Village Center Cinemas which has been rezoned to commercial and multi-family residential.

Commercial and Industrial

The General Commercial District and the Central Business District permit light manufacturing, residential development of one or more units located over or under a permitted use at ground level, cultural and entertainment uses, and general trade and service uses. The Central Business District promotes compact development consistent with the downtown character, and the General Commercial District facilitates larger scale land uses that can attract a significant amount of vehicular traffic.

The Heavy Industrial District permits most types of manufacturing and production uses, some cultural and trade and service uses, and resource production and extraction uses. The district does not allow most types of residential development.

There is an undeveloped area near the south end of the City that is zoned General Commercial but is currently used as open space. Much of this area is likely to remain undeveloped.

Those parcels that do have potential for redevelopment include a property near the intersection of SE Johnson Avenue and SE Bishop Boulevard, on the west side of the River, south of the Village Center Cinemas which has been rezoned to commercial and multi-family residential. Development on that property is probable and could include areas in shoreline jurisdiction.

Parks

There is a new park being planned at SE Johnson Avenue and Old Moscow Road, as well as several other potential parks upgrades. This development will occur mainly in the Shoreline Parks environment.

Urban Growth Area

Anticipated zoning for the shoreline annexation area is low-density residential, which has the potential to increase the existing density of the area, 85% of which is currently in agricultural use. If Pullman were to annex the designated urban growth area, it is likely that a notable amount of development, primarily low-density residential at a maximum density of 15 units per acre, would occur. These residential developments will need to be in compliance with the policies and regulations of the SMP, including setbacks and public access requirements.

4 EFFECTS OF ESTABLISHED PROGRAMS

4.1 Current County Regulations and Programs

All development activity within the City is required to comply with the Pullman City Code (PCC). Provisions in the PCC 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 Title 16 of the Pullman City Code, most recently updated in 2007. These regulations specify recommended minimum Riparian Habitat Area buffer widths of 50 feet to 150 feet depending on the stream type (PCC 16.50.470). Wetland buffers of between 25 and 200 feet are required based on wetland category and intensity of proposed land use (PCC 16.50.270). 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. A variety of different zoning designations are present in shoreline jurisdiction including a Heavy Industrial District; General Commercial District; Central Business District; Washington State University; and Low, Medium and High Density Multi-Family Residential Districts. Each zone has different permitted uses which help to concentrate development in areas appropriate and suitable for similar uses (PCC Title 17).

Zoning regulations applied to the potential annexation area will guide development of those parcels. The parcels are proposed to be zoned for low-density residential.

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 responsibility 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 pier and 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 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). 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

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 and Shoreline Residential. All areas waterward of the OHWM are designated Aquatic. Criteria for each environment designation are provided in Table 4-1.

Table 4-1. 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: • They are within existing or planned public parks or public lands intended to accommodate public access and recreational developments;

Environment Designation	Classification Criteria
	• 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.
Shoreline Residential	Areas that are predominantly single-family or multi-family residential development or are planned and platted for residential development.
Aquatic	Lands waterward of the ordinary high-water mark.

The distributions of each environment designation in Pullman are shown in Figure 4-1. Pullman's proposed environment designations reflect the urban and generally highly developed nature of the City's shoreline. The environment designations appropriately focus potential high-intensity development activity in existing disturbed areas with higher levels of existing alterations and lower ecological functions. Those existing disturbed shorelines are not likely to experience significant function degradation with incremental increases in new development. 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 shoreline.

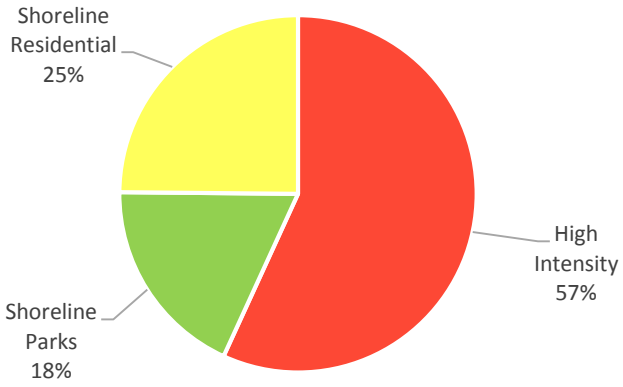

Figure 4-1. Distribution of upland environment designations in Pullman by area (*excludes potential annexation area*)

Not included in the breakdown of environment designations presented in Figure 4-1 and discussed above is a 154.82-acre urban growth area extending northwest just outside of the current City limits along Brayton Road until just north of Armstrong Road (See Figure 1-1). This area has been assigned a Shoreline Residential environment designation, with unique

development standards based on the existing conditions and projected use of the area after annexation.

5.2 Critical Areas Regulations

The SMP includes policies and regulations to avoid cumulative effects to critical areas (SMP Section 16.55.700). Mitigation sequencing is required for all proposed impacts to shoreline critical areas, including wetlands, fish and wildlife habitat conservation areas (which includes streams), critical aquifer recharge areas, frequently flooded areas and geologically hazardous areas (Subsection 16.55.702(K)). Key SMP regulations proposed for wetlands and streams which should help ensure no net loss of ecological function, including standard buffer areas, are discussed in greater detail below.

Wetlands

The SMP requires vegetated buffers for all shoreline wetlands. Mitigation sequencing is required for impacts to wetland buffers as well as to wetlands. The proposed standard wetland buffer widths are based on the wetland category and intensity of proposed adjacent land use 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). The SMP Administrator may require increased buffer widths on a case-by-case basis when a larger buffer is necessary to protect wetland functions and values based on site- specific characteristics (Subsection 16.55.703(E)(4)). Buffer averaging is permitted when a qualified wetland professional documents that it will not reduce wetland functions and that minimum buffer widths in Subsection 16.55.703(E)(5) are met. The proposed SMP standards should ensure that wetland functions are maintained over time.

Streams

The proposed SMP establishes shoreline stream buffer regulations, described as riparian habitat area widths (Subsection 16.55.707(D)), that were developed to be consistent with existing conditions, as generally described as part of the *Shoreline Analysis Report*. Riparian habitat area widths range from 0 to 100 feet as follows:

- In the Shoreline Residential environment designation within City limits, a riparian habitat area width of the lesser of 75 feet or (if present) the waterward edge of an improved public road or railroad intersecting the riparian habitat area.
- In the Shoreline Residential environment designation within the potential annexation area, a riparian habitat area width of the lesser of 100 feet or (if present) the waterward edge of an improved public road or railroad intersecting the riparian habitat area.

- In the Shoreline Parks environment designation, a riparian habitat area width of the lesser of 50 feet or (if present) the waterward edge of an improved public road or railroad intersecting the riparian habitat area.

- In the High Intensity environment, no riparian habitat area is proposed from the retaining wall east of NE Kamiaken Street on the south side of the Palouse River. Everywhere else in the High Intensity designation has a riparian habitat area width proposed that is the lesser of 30 feet or (if present) the waterward edge of an improved public road or railroad intersecting the riparian habitat area.

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.

Non-shoreline waters within shoreline jurisdiction are required to have a 30 to 100-foot riparian habitat area width depending on the environment designation they are in and the type of water. Establishing riparian habitat areas for non-shoreline streams within shoreline jurisdiction helps ensure that riparian functions are maintained at ecologically significant confluence areas.

The SMP Administrator may increase riparian habitat area widths if it is determined that the standard width is insufficient to protect functions (16.55.707(D)(3)(e)). Riparian habitat area width averaging is permitted under certain circumstances provided that the overall stream and habitat functions are not decreased (16.55.707(D)(3)(f))).

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 (16.55.603(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 Unregulated, Illegal and Exempt Development

Unregulated Uses

Unregulated shoreline activities include activities that are not "development" and do not require any sort of shoreline permit, including a shoreline exemption. Typically, these unregulated activities involve everyday maintenance and use of shoreline lands in conjunction with an approved land use (e.g., applying fertilizer in a residential yard, driving a car on a road along the shoreline, using a boat that is moored at a dock or launched at a boat ramp). Because these activities are associated with legally permitted land uses, the potential effects of these unregulated uses are addressed in concert with the analysis of land uses below.

Illegal Uses

Illegal activities are expected to occur infrequently in shoreline jurisdiction. Where illegal actions are identified, they are required to be rectified. Where illegal actions are not recognized, they may result in an incremental loss of shoreline functions. These incremental losses are expected to be offset by mitigation requirements for permitted actions that result in minor improvements over time, as well as by voluntary restoration actions identified in the Shoreline Restoration Plan.

Exempt Development

Development and activities that are exempt from requirements for a shoreline substantial development permit are specified in WAC 173-27-040. The SMP explicitly states that development qualifying for a shoreline exemption must still comply with all SMP policies and regulations. Because the SMP provides specific design standards for many exempt developments (such as shoreline stabilization to protect a residence, or a dock) and require that

all exempt development types avoid, minimize, and compensate for shoreline impacts, exempt development is not expected to result in a net loss of shoreline functions.

5.5 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 infill development downtown in the High Intensity designation and park development in the Shoreline Parks designation. If the annexation of land occurs, there could be significant residential development within jurisdiction in the Shoreline Residential environment. These activities include upland development, and may also include the development of shoreline stabilization, utilities, and/or access roads. They are not likely to include the development of overwater structures. 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 then the changes discussed in Chapter 3, 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 Subsection 16.55.707(D), discussed in Section 5.2 above.

Agriculture

Likelihood of development: The SMP provisions do not limit or require modification to ongoing agricultural activities. Ongoing uses are not expected to degrade ecological functions relative to

existing conditions. However, 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 reduction in native and riparian cover associated with conversion of lands to agricultural uses.

Application of the SMP: SMP provisions apply to new agricultural activities or expansion of such activities on land not meeting the definition of agricultural land and to conversion of agricultural lands to non-agricultural uses. In such cases, shoreline buffers consistent with Subsection 16.55.707(D), 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 16.55.801(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 (Section 16.55.610). Any new aquaculture facility would need to be designed and located to avoid a net loss of ecological functions (Subsection 16.55.802(B)(1)(d)). Mitigation sequencing, as described above, would apply.

Boating Facilities

Likelihood of development: No boating facilities currently exist in Pullman and no new boating facilities are anticipated. The South Fork Palouse River is not commercially navigable. Waters are typically too shallow to allow water transportation or many in-water recreational uses.

Application of the SMP: The SMP prohibits all new boating facilities (Section 16.55.610).

Commercial Development

Likelihood of Development: Pullman's shoreline area currently has quite a few commercial uses, mostly concentrated downtown in the commercial core. The most likely type of commercial

development to occur in the future would be infill development on undeveloped lands or replacement of an existing use.

Application of the SMP: Common effects of commercial development include increased impervious surfaces, increased traffic, and vegetation clearing. Under the proposed SMP, recreation concessions, would be allowed in all shoreline environments, while general commercial activities would be permitted in Shoreline Parks,High Intensity and the Aquatic environment for sites separated from the shoreline and mixed-use projects that include a water-dependent use (Section 16.55.610). General commercial activities would be conditional in all environments while visitor-service uses would be conditional in all environments except high intensity, where it would be permitted (Section 16.55.610).

All types of commercial development shall comply with the Environmental Protection regulations of Section 16.55.603 and 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.

Flood Hazard Management

Likelihood of Development: The City does not contain any mapped levees, dikes or other formal flood control structures. New flood control features are not expected, but there is some potential that a structure could be proposed in the future.

Application of the SMP: Construction of any new flood hazard reduction measures in support of new development within the floodplain would be required to meet the regulations of Section 16.55.606 (Flood Hazard Reduction) as well as Section 16.55.705 (Frequently Flooded Areas). Flood hazard reduction measures shall not result in channelization of normal stream flows, interfere with natural hydraulic processes such as channel migration, or undermine existing structures or downstream banks (Subsection 16.55.606(B)(4)).

Forest Practices

Likelihood of Development: Forestry practices are not a common shoreline use in Whitman County and do not currently occur in Pullman. New forestry practices are not expected.

Application of the SMP: The SMP prohibits all new forest practices (Section 16.55.610).

In-Stream Structural Uses

Likelihood of Development: In-stream structures are not common in Pullman, though some may exist. 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: Instream structures are typically intended to modify flows, which can result in alterations to circulation patterns, water quality, and habitat access and conditions.

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 (Section 16.55.610). Per Subsection 16.55.804(B)(1), in-stream structures may only be allowed as part of a City-approved watershed basin restoration project. 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 (Subsection 16.55.804(B)(2)). In addition, natural in-stream 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 16.55.804(B)(6)).

Mining

Likelihood of Development: Mining has the potential to significantly impact erosion processes, water quality, and instream habitat. Mining does not currently occur in Pullman's shorelines and new mining is not anticipated.

Application of the SMP: The SMP prohibits all new mining (Section 16.55.610).

Industrial Development

Likelihood of Development: A portion of Pullman's shoreline jurisdiction is zoned Heavy Industrial and its current use is identified as manufacturing or transportation and utilities. It is unlikely that new industrial development will occur in this area.

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 Shoreline Residential and Shoreline Parks environment designations. Depending on the use, the level of review for industrial development in the High Intensity and Aquatic environments varies.

Subsection 16.55.805(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 (Subsection 16.55.805(B)(2)(f)).

Recreational Development

Likelihood of Development: 18% of Pullman's shoreline jurisdiction is designated as Shoreline Parks. There is currently public access to the shoreline provided through the Bill Chipman Palouse Trail, the Grand Avenue Greenway, Spring Street Skate Park, the City Playfields, Reaney Park, and the Community P-Patch. An additional park development is being planned at SE Johnson Avenue and Old Moscow Road, as well as several parks upgrades.

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 (16.55.610). Nonwater-oriented recreational development would be required to obtain a Shoreline Conditional Use Permit and is prohibited in the Aquatic designation (16.55.610). On sites separated from the shoreline, a nonwater-oriented recreational development would be permitted by a Shoreline Substantial Development Permit (16.55.610).

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 16.55.603 (Environmental Protection), 16.55.604 (Shoreline Vegetation Conservation), 16.55.605 (Water Quality, Stormwater and Nonpoint Pollution), and 16.55.700 (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 in shoreline jurisdiction is limited. It is possible that new residential development could occur in the future, but unlikely that there would be substantial residential development within shoreline jurisdiction in the City of Pullman. In the event that the annexation of the urban growth area occurred, there would likely

be substantial residential development in the annexation area, some of which would occur within shoreline jurisdiction.

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; reduced shoreline habitat complexity; and increased water temperatures.

New single-family developments are permitted with a Shoreline Substantial Development Permit (or Shoreline Exemption) within the Shoreline Residential environment designation. Multi-family structures and new mobile homes would require a Shoreline Conditional Use Permit. Multi-family structures and mobile homes would also be allowed in the High Intensity environment with a Shoreline Substantial Development Permit.

Subsection 16.55.807(B)(1) requires that new residential lots created through land division shall comply with all applicable subdivision and zoning regulations, assure that no net loss of ecological functions result from the plat or subdivision at full build-out of lots, and 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 16.55.807(B)(3)).

Transportation and Parking

Likelihood of Development: Existing transportation infrastructure in shoreline jurisdiction includes local roads, parking areas, rail, and bridges. New transportation facilities are not generally anticipated, but are possible. Replacement, repair, and maintenance of existing 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 16.55.808(B)(1, 2)). When new roads, road expansions, or railroads are unavoidable, proposed transportation facilities shall be planned, located, and designed to minimize possible adverse effects on unique or fragile shoreline, to maintain no net loss of shoreline ecological functions, and to be set back from the OHWM to the maximum distance feasible (Subsection

16.55.808(B)(1)). Repair and maintenance of transportation facilities are addressed below under "Redevelopment, Repair, and Maintenance."

Utilities

Likelihood of Development: Pullman's wastewater treatment plant is located along the South Fork Palouse River in the northern area of the City. According to the City's Comprehensive Plan (1999), the plant has a peak capacity of 8.6 million gallons per day (mgd), with an average flow of 3.29 mgd. The system includes more than 62 miles of collection pipes. If the annexation area were brought into city jurisdiction, there may be a need to develop added utility capacity and network. However, this development would not need to occur within shoreline jurisdiction of the annexation area.

Pullman also has a storm drainage system that consists of natural and constructed conveyances, including detention ponds and underground settlement vaults, biofiltration swales, ditches, catch basins, pipes, and natural watercourses. Storm drain systems are required by the City for all new land use development. There is no known utilities development anticipated, except in the case of new development which would require storm drain systems. Development in shoreline jurisdiction of the annexation area would also require storm drain development.

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 16.55.809(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 16.55.809(B)(2)).

Redevelopment, Repair, and Maintenance

Likelihood of Development: As significant 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 16.55.810(B)(3)).

Breakwaters, Jetties, Weirs, and Groins

Likelihood of Development: Breakwaters, jetties, weirs and groins were not observed in Pullman. Few, if any, new structures are anticipated.

Application of the SMP: Breakwaters, jetties, weirs 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, or maintain existing water-dependent uses are permitted in all environment designations only as a conditional use (Section 16.55.610). Per Subsection 16.55.902(B)(1), breakwaters, jetties, weirs and groins may be allowed only as part of a City-approved watershed restoration project. 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 16.55.902(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 16.55.903(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 16.55.903(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 developments.

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 16.55.904(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 16.55.904(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 16.55.905(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 16.55.905(B)(2)). Long-term maintenance and monitoring must also be included in restoration or enhancement proposals (Subsection 16.55.905(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 16.55.905(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 limited, and generally only noted at stream crossings and as retaining walls on the south side of the stream adjacent to Main Street businesses; repair and maintenance is expected on an infrequent 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 16.55.906(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 (16.55.906(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 16.55.906(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 16.55.906(B)(7)).

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 16.55.906(B)(8)).

5.6 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* provides an important non-regulatory component of the SMP to ensure that shoreline functions are maintained or improved despite potential incremental losses that may occur even with implementation of SMP regulations and mitigation actions.

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

- Restore instream habitat complexity
- Set back dikes

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

The *Shoreline Restoration Plan* acknowledges the important role that private landowners have in determining the condition of shoreline ecological functions. The plan identifies several agencies and non-governmental organizations actively involved in public outreach and education measures that help inform and engage the public to make voluntary actions that limit degradation and/or improve shoreline functions. Stream restoration projects are ongoing in the City through the Palouse-Clearwater Environmental Institute (PCEI). A long stretch of the South Fork adjacent to the City Playfields has been enhanced with native vegetation and banks stabilized with coir fabric "logs" to help minimize erosion. PCEI also organizes an annual spring stream cleanup activity for volunteers. At present, there are also 13 stream segments in the City, including South Fork Palouse River and tributary streams, that are sponsored by different organizations or families under the Adopt-A-Stream program.

6 NET EFFECT ON ECOLOGICAL FUNCTION

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

The primary types of anticipated development include the following: commercial infill development in the downtown core, park development, and residential development in the annexation area and regular maintenance and repair of existing facilities.

The proposed SMP is expected to maintain existing shoreline functions within the City of Pullman 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 Pullman.** Voluntary actions identified and prioritized in the *Shoreline Restoration Plan* will provide the opportunity to enhance and restore shoreline functions over time.

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