

CUMULATIVE IMPACTS ANALYSIS REPORT



City of Pasco Shoreline Master Program Update

Prepared for

City of Pasco

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LIST OF ACRONYMS AND ABBREVIATIONS

City	City of Pasco
CWA	Clean Water Act
Ecology	Washington State Department of Ecology
ESA	Endangered Species Act
HPA	hydraulic project approval
IAC	Inventory, Analysis, and Characterization
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
OHWM	ordinary high water mark
RCW	Revised Code of Washington
RR	regulatory reach
SMA	Shoreline Management Act
SMP	Shoreline Master Program
SR	Subreach
UGA	urban growth area
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WQC	Water Quality Certification
WSDOT	Washington State Department of Transportation

1 INTRODUCTION

1.1 Report Purpose

The City of Pasco (City) received grant funding from the Washington State Department of Ecology (Ecology) to update the existing Shoreline Master Program (SMP). A primary purpose of this effort is to develop an SMP that complies with Chapter 90.58 of the Revised Code of Washington (RCW), the Shoreline Management Act (SMA), and Ecology’s 2003 SMP Guidelines (Chapter 173-26 Washington Administrative Code [WAC]), while still meeting local goals and planning objectives.

The guidelines require the City to demonstrate that the updated SMP will result in no net loss to shoreline ecological functions during implementation. Developing this conclusion requires an examination of projected future development, how this development may risk ecological function, and regulatory and non-regulatory actions, including restoration plans, which can influence this risk.

WAC 173-26-201(2)c provides the following guidance for protection of ecological functions of shorelines:

“Master programs shall contain policies and regulations that assure, at minimum, no net loss of ecological functions necessary to sustain shoreline natural resources. To achieve this standard while accommodating appropriate and necessary shoreline uses and development, master programs should establish and apply:

- *Environment designations with appropriate use and development standards; and*
- *Provisions to address the impacts of specific common shoreline uses, development activities and modification actions; and*
- *Provisions for the protection of critical areas within the shoreline; and*
- *Provisions for mitigation measures and methods to address unanticipated impacts.*

When based on the inventory and analysis requirements and completed consistent with the specific provisions of these guidelines, the master program should ensure that development will be protective of ecological functions necessary to sustain existing shoreline natural resources and meet the standard. The concept of ‘net’ as used herein,

recognizes that any development has potential or actual short-term or long-term impacts and that through application of appropriate development standards and employment of mitigation measures in accordance with the mitigation sequence, those impacts will be addressed in a manner necessary to assure that the end result will not diminish the shoreline resources and values as they currently exist. Where uses or development that impact ecological functions are necessary to achieve other objectives of RCW 90.58.020, master program provisions shall, to the greatest extent feasible, protect existing ecological functions and avoid new impacts to habitat and ecological functions before implementing other measures designed to achieve no net loss of ecological functions.

Master programs shall also include policies that promote restoration of ecological functions, as provided in WAC 173-26-201 (2)(f), where such functions are found to have been impaired based on analysis described in WAC 173-26-201 (3)(d)(i). It is intended that local government, through the master program, along with other regulatory and nonregulatory programs, contribute to restoration by planning for and fostering restoration and that such restoration occur through a combination of public and private programs and actions. Local government should identify restoration opportunities through the shoreline inventory process and authorize, coordinate and facilitate appropriate publicly and privately initiated restoration projects within their master programs. The goal of this effort is master programs which include planning elements that, when implemented, serve to improve the overall condition of habitat and resources within the shoreline area of each city and county.”

Combined with the Restoration Plan (Anchor QEA 2015), the Cumulative Impacts Analysis Report is one of the final analysis and documentation steps for the City’s comprehensive SMP update. This report includes a brief introduction to the City setting; a more detailed discussion of the setting is available through the Inventory, Analysis, and Characterization (IAC) Report (Anchor QEA 2014). Also included is a discussion of anticipated development for the next 20 years. This is based on the land capacity analysis presented in the IAC Report, which is further refined based on the foreseeable rate of development within each shoreline reach over the next 20 years. Potential impacts to ecological functions from this development are identified, along with provisions to address these impacts. Finally, based on all of these inputs, the anticipated future performance for each shoreline area is addressed.

Overall, the report will serve to demonstrate that future development under the proposed SMP will result in no net loss of shoreline ecological function in the City.

2 SETTING

The City is located at the confluence of the Columbia and Snake rivers within Franklin County in the southeastern portion of Washington. The Columbia River is to the south of the City, and the Snake River is to the southeast. The portion of the Columbia and Snake rivers within the City is part of the upstream portion of Lake Wallula. The lake is created from the impoundment of the Columbia River by McNary Dam. The segments of the Columbia and Snake rivers around the City are located in a wide valley comprised primarily of alluvial soils with relatively high infiltration rates. Within upland areas, particularly areas farther from the confluence of the river, outburst flood deposits of gravel occur as well.

The City falls within the Central Basin region of Washington, which has the lowest precipitation rates in Washington. High temperatures in January can range from 35 to 45 °F (1.6 to 7.2 °C), with low temperatures between 25 to 35 °F (-6.7 to -1.1 °C). Summer high temperatures are usually in the high 80s to low 90s, with low temperatures in the high 50s (WRCC 2015).

The Columbia and Snake rivers are major surface water resources in the City. Because the planning area is within the Lake Wallula portion of these rivers, water levels are generally stable. Both the Columbia and Snake river floodplain levels are confined due to the levy and dam system maintained by the U.S. Army Corps of Engineers (USACE). The northern part of the City Urban Growth Area (UGA) is just below the Hanford Reach National Monument's Wahluke unit of the Columbia River.

The City is part of the Tri-Cities Metropolitan Area in southeast Washington and includes 25,247 acres in the current incorporated limits and an additional 5,433 acres in the UGA. The City and its associated UGA compose about 72% of the 55 square miles of designated UGA in Franklin County (Franklin County 2008).

The City's shoreline is dominated by Open Space land use comprising 60% of the total shoreline area. Industrial land use composes more than 25% of the shoreline. Much of the Open Space area is owned by USACE and is developed with flood protection levees. Washington State Parks and Recreation Commission also owns Open Space (Sacajawea State

Park) within the shoreline. Other major public landowners include Port of Pasco and Washington State Department of Transportation. Industrial land along the shoreline is mostly owned by the Port of Pasco on the south and southeast sides of the City. Residential uses are mostly concentrated on the south side of I-182. See Table 1 for a summary of land use within the shoreline jurisdiction.

Table 1
Existing Land Use within Pasco Shoreline Jurisdiction

Land Use Category	Acres in Shoreline	Land Use
Open Space	307.30	60.2%
Low Density Residential	68.24	13.3%
Mixed Residential	2.53	0.5%
Mixed Residential Commercial	2.38	0.5%
Industrial	130.21	25.5%
Commercial	0.02	0.0%
Total	510.7	100%

3 REASONABLY FORESEEABLE FUTURE DEVELOPMENT AND POTENTIAL IMPACTS TO ECOLOGICAL FUNCTION

3.1 Foreseeable Future Development

The City has an estimated population of 67,770, based on 2014 Office of Financial Management data. From 2010 to 2014, the population growth is estimated at about 13% with annual growth rate ranging from 2% to 5% (OFM 2014). With the positive population trends, some additional development within the City’s shoreline is anticipated throughout the next 20 years. However, unlike the rest of the City, the shoreline is mostly developed with residential, recreational, and industrial uses and flood protection levees. Future development would mostly include recreational improvements with limited new residential, commercial, and industrial developments. Potential for future development is summarized in Table 16 of the IAC Report. Table 2 below presents a number of development indicators and details for each shoreline reach by environment designations. Information described in the table includes:

- **Developable Areas** – Presents the vacant areas either subdivided or not yet platted
- **Anticipated Development** – Includes the anticipated residential, commercial, or recreational development in the next 20 years
- **Environment Designations** – Identifies the environment designations for each reach that are tied to the anticipated development

**Table 2
City Shorelines**

Pasco – Reach 1	
Developable Areas: The entire shoreline area in SR 1a and vacant parcels in SR 1b, 1d, and 1e	
Future Development Constraints: USACE ownership of land, existing road, and gravel pit (Broadmoor) with long-term lease	
Environment Designations	Anticipated Development
Natural	Potential expansion of Sacajawea Heritage Trail and raised viewing decks, river access points and parks to connect to Shoreline Road, and potential restricted, non-motorized-only boating area near wildlife reserve area.
Urban Conservancy	Potential river access points to connect to Shoreline Road, expansion of Sacajawea Heritage Trail and raised viewing decks, and boat basin and launch.

Reasonably Foreseeable Future Development and Potential Impacts to Ecological Function

Shoreline Residential	Potential expansion of Sacajawea Heritage Trail. Although there is capacity for 32 new residential units, five units could be built on an existing developed area (a pig farm). Therefore, 27 potentially new units could be built on undeveloped land with portions of the potential future development parcels in shoreline jurisdiction.
Recreation	Limited recreational development, including public access expansion on Dent Road right-of-way adjacent to the Pasco Ranch boat moorage. Potential development of boat basin and marina in SR 1d according to Broadmoor Concept Plan.
Pasco – Reach 2	
Developable Areas: Vacant parcels within the shoreline	
Future Development Constraints: Mostly built-out	
Environment Designation	Anticipated Development
Shoreline Residential	Residential development is limited only to the currently vacant parcels; three new units are anticipated with portions of these parcels in shoreline jurisdiction.
Recreation	Limited recreational development; potential access improvement on the Irrigation District’s property.
Pasco – Reach 3	
Developable Areas: No developable areas except for recreational facilities improvement on the park	
Future Development Constraints: Chiawana Park and USACE ownership	
Environment Designation	Anticipated Development
Urban Conservancy	Parking facility improvement at the terminus of Road 76. Installation of seating areas and drinking facilities along the trail. Develop a “pocket park” with restrooms at Road 84.
Recreation	Potential park improvement for additional boat launch and beach area; trail and parking facility improvement and park extension at the terminus of Road 84. Potential addition of a community center type structure at Chiawana Park.
Pasco – Reach 4	
Developable Areas: No private development; vacant lots behind the levee and the drainage ditch	
Future Development Constraints: Mostly built-out, USACE ownership of land and levee, and Wade Park	
Environment Designation	Anticipated Development
Public Flood Protection	Lowering the levee has been discussed contingent upon USACE approval. Potential development of beach area and parks with boats and access points along Roads 60 and 68.
Recreation	Potential development of a beach area at the Roads 39/40 Wade park entrance. Potential development of a riverside dining venue.

Pasco – Reach 5	
Developable Areas: Park development on vacant BNSF land; development of the industrial area only after the abandonment of the BNSF rail track	
Future Development Constraints: Public ownership by USACE, WSDOT, City of Pasco, Port of Pasco, and BNSF Railway Company; existing levee and rail track	
Environment Designation	Anticipated Development
Urban Conservancy	None
Public Flood Protection	Improvement of open space area near W. Havstad Street; access improvement from the levee to the river. Potential development of riverview decks and steps on parts of the levee down to the river on SR 5d.
Recreation	Potential access and park improvement with addition of beach area south of the Riverview Park.
High Intensity Use	Potential mixed use development in SR 5d, about 1,600 square feet. Park facilities expansion.
Pasco – Reach 6	
<p>Developable Areas: The Port’s vacant industrial property (SR 6a) could be developed within the shoreline. However, this is contingent upon the Pasco Marine Terminal remediation process. Future development is currently being planned. The pace of redevelopment depends on the remediation process and market factors. The Boat Basin/Marine Terminal Plan indicates high-density mixed use development in SR 6a. The Plan recommends upper floor residential or commercial office use with ground floor retail and parking with a potential building height of three to five stories.</p> <p>Plans for Osprey Pointe development in SR 6c include office and commercial development. This would include parking area development within the shoreline. Proposed commercial office buildings are mostly located outside the 200-foot shoreline jurisdiction with some portions of the buildings potentially within the shoreline.</p>	
Future Development Constraints: BNSF rail track; remediation approaches and institutional controls to address remaining contamination areas on the Port of Pasco property	
Environment Designation	Anticipated Development
Urban Conservancy	None
Recreation	Potential access, trail, park, and marina improvement; potential addition of public beach, viewpoints, and a new marina park. The under crossing between the boat basin and marina has recently been approved and is anticipated to be built in the near future.
High Intensity	Potential trail improvement
High Intensity Mixed Use	Approximately five acres of developable area in SR 6a. With 75% land coverage, potential mixed use development of 166,000 square feet (ground floor commercial, upper floor residential and office, plaza, view point and other development. Development of parking lot at Osprey Pointe; about 18,672 square feet of office-commercial building area is proposed in SR 6c.

Pasco – Reach 7	
Developable Areas: Park areas	
Future Development Constraints: Washington State Parks and Recreation Commission ownership	
Environment Designation	Anticipated Development
Urban Conservancy	Limited trail improvements and potential addition of camping facilities
Recreation	Potential park and trail improvements. Potential development of Sacajawea Heritage Trail to connect with Columbia Plateau trail.
Pasco – Reach 8	
Developable Areas: Low development potential. Industrial area is less likely to have additional development within the planning timeframe. Potential for trail connection to the east.	
Future Development Constraints: BNSF rail track, Ainsworth historic town, and industrial area is mostly developed with fuel tanks.	
Environment Designation	Anticipated Development
High Intensity	Trail improvements and Sacajawea Heritage Trail extension

Notes:

IAC = Inventory, Analysis, and Characterization Report

RR = Regulatory Reach

SR = Subreach

USACE = U.S. Army Corps of Engineers

WSDOT = Washington State Department of Transportation

WSU = Washington State University

3.2 Potential Impacts to Ecological Function from Development

Conventional development can lead to negative impacts to the ecological function of shorelines. The degree of impacts can be tied to the intensity of development, the intensity of human use, the buffer distance between upland development and the shoreline, whether shoreline features such as overwater structures and bank hardening are included, and the maintenance operation procedures and materials used. Potential impacts are described below based on the categories of Hydrology, Sediment, Water Quality, and Habitat.

Hydrology: Impervious surfaces affect subsurface storage and flows; shoreline hardening can affect subsurface water supply cycle, impacting hyporheic exchange. Overwater structures can affect surface flow dynamics, creating eddies (localized changes in water velocity).

Sediment: Sheet flow from impervious surfaces can increase soil erosion and impact the natural nutrient cycles. Vegetation removal also increases soil erosion. Shoreline hardening

can affect the sediment supply cycle impacting hyporheic exchange; it can also increase wave energy and thus soil/sediment erosion at the toe of the slope and transfer energy downstream/downcurrent of the hardened area. Wakes from recreation vessels can further exacerbate soil and sediment erosion issues.

Water Quality: Impervious surfaces affect nutrient cycling, and runoff from these surfaces may include toxins or pathogens that affect water quality. Vegetation alterations have similar impacts and may also increase water temperatures due to the loss of overhanging canopies. Landscaped areas where fertilizers, herbicides, and/or pesticides are used contribute to harmful toxin inputs into the aquatic environment. At boat ramps, gasoline and other chemicals associated with vessel and truck operations and maintenance can potentially enter the aquatic environment.

Habitat: Development, including shoreline infrastructure, can replace habitat patches and fragment patches and/or corridors. Disturbance may increase invasive wildlife and plant species limiting resources for native species. Overwater structures alter sediment, organic material pathways, and the photic zone. Aquatic fill can affect spawning habitat, and shoreline hardening may replace variable-sized nearshore sediment materials with large homogenous substrates less conducive to threatened and endangered aquatic species. Artificial light and increased noise can disturb native wildlife species.

4 PROTECTION PROVISIONS OF THE PROPOSED SHORELINE MASTER PROGRAM AND ESTABLISHED REGULATION

The City's SMP will work in conjunction with other city, state, and federal regulations and programs that aim to protect ecological resources and the health and well-being of citizens. The following section summarizes the critical area state and federal regulations and plans for restoration. It also describes activities that will be exempt from shoreline development permits that are administered through the SMP.

4.1 Critical Area Protection and Mitigation

The City has critical area regulations for wetlands, geologically hazardous areas, and fish and wildlife habitat conservation areas. The Critical Areas Code also describes general mitigation requirements, including avoiding, minimizing, rectifying, or compensating for adverse impacts to these areas or their buffers. Existing City critical area regulations were updated for the shoreline to be consistent with Ecology's *Washington State Wetland Rating System for Eastern Washington* (Ecology 2014) and will be updated for critical areas outside the shoreline.

4.2 Beneficial Effects of Established Regulation and Recreational Land Management Agreement

Certain state and federal agencies have jurisdiction over certain types of potential development impacts within the City's shoreline jurisdiction, in addition to the SMP requirements. Development thresholds that commonly lead to federal agency consultation include proposals that may impact federally listed fish or wildlife, wetlands, and streams; affect the floodplain or floodway; or include clearing and grading of land.

The updated SMP regulations are meant to be consistent with and work in concert with the following existing state and federal regulations:

- **Hydraulic Project Approval (HPA)** – The HPA is administered by the Washington Department of Fish and Wildlife (WDFW). Any work that uses, diverts, obstructs, or changes the natural flow of beds or banks of waters of the state is subject to WDFW regulation and could require HPA approval. This could include any projects within

the shoreline jurisdiction that require construction below or over the ordinary high water mark (OHWM) of lakes, rivers, and streams. This could also include projects that propose creating new impervious surfaces that would increase stormwater runoff to the waters of the state.

- **National Pollutant Discharge Elimination System (NPDES)** – NPDES permits are administered by Ecology. Any activity that results in the discharge of wastewater to surface water from industrial facilities to municipal wastewater treatment plants requires an NPDES permit. In addition, activities that result in stormwater discharge from industrial facilities, construction sites larger than 1 acre, and municipal stormwater systems that serve more than 100,000 people require an NPDES permit.
- **Clean Water Act (CWA) Section 404 Permit (Section 404)** – The federal CWA provides the regulatory structure that authorizes the discharge of pollutants from point sources to waters of the United States. Section 404 of the CWA regulates the discharge of dredged or fill material into the water of the United States, including wetlands. USACE administers and enforces the 404 permit, including individual permit decisions and jurisdictional determinations.
- **CWA Section 401 Water Quality Certification (Section 401)** – Section 401 of the CWA requires that activities under Section 404 meet the state water quality standards. Ecology reviews and certifies that a proposed project meets the state’s standards with the issuance of the Section 401 Water Quality Certification (WQC). The WQC is required for all general and individual Section 404 permits.
- **Section 10 Rivers and Harbors Act (Section 10)** – In conjunction with the Section 404 permit, USACE also administers the Section 10 permit. All projects and activities that take place in navigable waters of the United States are subject to Section 10.
- **Endangered Species Act (ESA) Compliance** – The ESA serves to protect and recover threatened and endangered species and the habitat that the species depend upon. The National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) jointly administer ESA compliance. Projects that are associated with federal funding or that require approvals for activities that may affect ESA-listed species will trigger compliance.

4.3 Restoration Opportunities

The SMP objective is to maintain no net loss of ecological shoreline functions necessary to sustain shoreline natural resources. It also should aim to improve the shoreline natural resources through restoration planning. Many groups are involved in shoreline restoration and protection in the region containing the City, including the federal and state government, Franklin Conservation District, and local cities and towns. The following list of key parties may not name all groups that have contributed to shoreline restoration or protection in the past or may in the future, as there may be others that arise.

- City Parks and Recreation Department
- Confederated Tribes of the Umatilla Indian Reservation
- Ducks Unlimited
- Ecology
- Franklin Conservation District
- Lower Columbia Basin Audubon Society
- Mid-Columbia Fisheries Enhancement Group
- NMFS
- Pheasants Forever
- The Nature Conservancy
- USACE
- U.S. Bureau of Reclamation
- U.S. Department of Agriculture
- USFWS
- WDFW
- Washington Native Plant Society, Columbia Basin Chapter
- Washington State Conservation Commission
- Washington State Department of Natural Resources
- Washington State Recreation and Conservation Office
- Washington Trout

While most restoration plans and programs from the SMP jurisdictional area address large-scale direction and management, there is a small set of actions that are named or planned for specific areas. Table 3 lists these restoration locations and opportunities and

provides the source document or project proponent, as well as the impairment to be addressed and the key benefits to ecological function expected as a result of the project implementation. Projects have been reordered in this table from the list of projects in the City's SMP Restoration Plan (Anchor QEA 2015) to match chronological order of reaches, but the project number has remained consistent with the Restoration Plan.

**Table 3
Site-specific Restoration and Protection Opportunities in Pasco**

	Site	Restoration/Protection Opportunities	Priority ¹	Source	Key Impairments ²	Key Benefits to Ecological Functions ²
1	Richland Bend Habitat Unit – USACE Wildlife Habitat Management Area (southern portion of SR 1c – Pasco Ranch and all of SR 1d – Horrigan Farms)	Set aside to maintain or restore riparian and upland environmental values including wildlife habitat	Very High	MSMP	Habitat loss	Riparian vegetation recruitment for native terrestrial species foraging/breeding/nesting habitat
		Manage built environment encroachment or recreation use to minimize disturbance to shoreline vegetation and aquatic habitat	High	IAC/RLAP/MSMP		Temperature/dissolved oxygen improvements
		Provide incentives to homeowners to replace lawn with native vegetation and implement BMPs for water conservation, application of fertilizer, pesticides, and herbicides (Broadmoor future planned development)	Moderate	BPJ		Improved toxin/pathogen management capabilities
		Set aside to maintain and restore aquatic and riparian environmental values including fish and wildlife habitat	High	MSMP		Increased habitat for terrestrial species foraging/breeding/nesting; protect against toxin and pathogen sources
		Protect and enhance existing riparian and shrub steppe habitat	High	IAC/MSMP		Increased habitat for terrestrial and aquatic species foraging/breeding/nesting/rearing/migration
		Establish riparian buffer between aggregate sorting facility and river	Moderate	IAC/MSMP		Protection for aquatic and terrestrial species
		Explore opportunities for restoring off-channel habitat at two existing small embayments used for boat access (near Dent Road) and as a water intake farther south	Very High	IAC/MSMP		Increased habitat for aquatic and terrestrial species foraging/breeding/nesting/migration
2	Chiawana Park (public park leased from USACE; all of SR 3 a)	Protect and enhance riparian buffer habitat throughout the park and limit mowed lawn areas extending to the shoreline	High	IAC/MSMP	Habitat loss	Riparian vegetation recruitment
		Implement vegetation management program for purple loose strife infestation	High	TCRM		Temperature/dissolved oxygen improvements
		Protect existing shrub-steppe habitat	High	IAC		Improve toxin/pathogen management capabilities
		Replace/update existing boat launch to current standards concerning grating and reduction in overwater cover	High	BPJ		Increased habitat for aquatic and terrestrial species foraging/breeding/nesting/migration
		Manage existing and planned high intensity recreational development to minimize disturbance to shoreline vegetation and aquatic habitat	High	IAC/RLAP/MSMP		Increased habitat for terrestrial species foraging/breeding/nesting
		Provide stormwater controls and incorporate LID measures	Moderate	IAC		Increased native shrub-steppe habitat for terrestrial species foraging/breeding/nesting/migration
						Protections for aquatic species foraging/breeding/nesting/migration/rearing
			Protections for aquatic and terrestrial species foraging/breeding/nesting/migration			
			Runoff rather than infiltration	Increased infiltration and groundwater recharge		
			Requires more built environment to manage (stormwater management infrastructure)	Protections for surface water quality		

**Table 3
Site-specific Restoration and Protection Opportunities in Pasco**

	Site	Restoration/Protection Opportunities	Priority ¹	Source	Key Impairments ²	Key Benefits to Ecological Functions ²
3	Sunset Acres (SR 3 b; owned by USACE)	Establish riparian buffers where absent and/or remove invasives where present	High	IAC	Loss of nutrient and organic inputs and reduced evapotranspiration and bioinfiltration	Riparian vegetation recruitment Temperature/dissolved oxygen improvements Improve toxin/pathogen management capabilities Increased habitat for aquatic and terrestrial species foraging/breeding/nesting/migration
		Protect existing riparian and shrub steppe habitat	High	IAC/MSMP	Habitat loss	Protections for aquatic and terrestrial species foraging/breeding/nesting/rearing
		Remove old dock	High	TCRM	Habitat loss	Protections for aquatic species foraging/breeding/nesting/migration/rearing
		Include clusters of wildlife habitat in potential future expansion of park development	High	RLAP	Habitat loss	Protections for aquatic and terrestrial species foraging/breeding/nesting/migration/rearing
		Manage built environment encroachment and incorporate native vegetation restoration with existing and planned upland development	Moderate	IAC	Habitat loss	Riparian vegetation recruitment for native terrestrial species foraging/breeding/nesting habitat Improved toxin/pathogen management capabilities Temperature/dissolved oxygen improvements
4	Riverview Park (SR 5c)	Improve open-water pond habitat east of the park, including riparian vegetation restoration	High	TCRM	Habitat loss	Increased habitat for aquatic and terrestrial species foraging/breeding/nesting/migration
		Consider soft-engineering techniques incorporating wood structure and vegetation to increase habitat function along hardened banks. Remove where reasonably practical or manage (trim or thin) Russian Olive to enhance foraging habitat for birds and replant with native vegetation.	High	IAC/MSMP	Habitat loss	Riparian vegetation recruitment
5	Osprey Pointe/Big Pasco (SR 6c)	Allow businesses to adopt segments of shoreline for restoration and invasive species removal	Moderate	TCRM	Habitat loss	Increased native shrub-steppe and riparian habitat for terrestrial species foraging/breeding/nesting/migration
		Protect existing riparian vegetation and do not mow woody species	High	IAC/MSMP	Habitat loss	Protections for aquatic and terrestrial species foraging/breeding/nesting/migration/rearing
		Establish riparian buffers where absent and/or remove invasives where present	High	IAC	Habitat loss	Riparian vegetation recruitment Temperature/dissolved oxygen improvements Improve toxin/pathogen management capabilities Increased habitat for aquatic and terrestrial species foraging/breeding/nesting/migration

**Table 3
Site-specific Restoration and Protection Opportunities in Pasco**

	Site	Restoration/Protection Opportunities	Priority ¹	Source	Key Impairments ²	Key Benefits to Ecological Functions ²		
6	Sacajawea State Park (SR 6c – Port of Pasco and Reach 7 – State Parks)	Establish riparian buffers where absent and/or remove invasives where present	High	IAC	Habitat loss	Riparian vegetation recruitment Temperature/dissolved oxygen improvements Improve toxin/pathogen management capabilities Increased habitat for aquatic and terrestrial species foraging/breeding/nesting/migration		
		Protect intact shrub-steppe	Very High	IAC/MSMP	Habitat loss	Increased native shrub-steppe and riparian habitat for terrestrial species foraging/breeding/nesting/migration		
		Manage built environment encroachment or recreation use to minimize disturbance to shoreline vegetation and aquatic habitat	Moderate	MSMP	Habitat loss	Riparian vegetation recruitment for terrestrial species foraging/breeding/nesting habitat		
		Explore opportunities for restoring off-channel habitat including the small embayment off the Snake River	Very High	CLSD/MSMP	Habitat loss	Water quality improvement at embayment Increased habitat for aquatic and terrestrial species foraging/breeding/nesting/migration/rearing		
		Restore/enhance existing wetlands, shrub-steppe, and riparian habitat	Very high	CLSD	Habitat loss	Increased habitat for terrestrial and aquatic species foraging/breeding/nesting/migration/rearing Increased subsurface infiltration and flow; protect surface water quality		
		Replace/update existing boat launch to current standards concerning grating and reduction in overwater cover	High	CLSD	Habitat loss	Protections for aquatic species foraging/breeding/nesting/migration/rearing		
		Preserve existing shrub-steppe and riparian habitat	Very high	IAC/MSMP	Habitat loss	Protections for aquatic and terrestrial species foraging/breeding/nesting/rearing		
		Incorporate soft-engineering techniques to moderate slopes along hardened banks	Moderate	CLSD	Habitat loss	Increased habitat for aquatic and terrestrial species foraging/breeding/nesting/migration/rearing		
		7	Sacajawea Heritage Trail Corridor (existing and planned extensions; all reaches)	Establish riparian buffers where absent and/or remove invasives where present within trail corridor	High		Loss of nutrient and organic inputs and reduced evapotranspiration and bioinfiltration	Temperature/dissolved oxygen improvements Improve toxin/pathogen management capabilities Increased habitat for aquatic and terrestrial species foraging/breeding/nesting/migration
				Protect and enhance shrub-steppe and riparian habitat	Very High		Habitat loss	Increased native shrub-steppe and riparian habitat for terrestrial species foraging/breeding/nesting/migration
Provide stormwater controls for impervious facilities associated with the trail	Moderate				Runoff rather than infiltration More built environment required to manage stormwater management infrastructure	Increased infiltration and groundwater recharge Protections for surface water quality		

Notes:

1 Categories are Very High (habitat protection actions), High (actions that restore ecosystem function), and Moderate (actions that restore habitat structure). Funded projects would take priority over other projects within each category.

2 Impairment and Benefits categories come from Table 2 of this Restoration Plan.

BMP = best management practice

BPJ = Best Professional Judgment

CLSD = Conceptual Level Shoreline Design Memorandum

IAC = Inventory, Analysis, and Characterization Report

LID = Low Impact Development

MSMP = McNary Shoreline Management Plan

RLAP = Rivershore Linkage and Amenity Plan

SR = Washington State Route

TCRM = Tri-Cities Rivershore Master Plan

USACE = U.S. Army Corps of Engineers

4.4 Environment Designations

The City has designated shoreline environments pursuant to Chapter 90.58 RCW by defining them, providing criteria for their identification, and establishing the shoreline ecological functions to be protected. Project proponents are responsible for determining whether a shoreline exists and is regulated pursuant to this SMP. The SMP classifies the City's shoreline into the following eight shoreline environment designations:

- **Aquatic** – The designation protects, restores, and manages the unique characteristics and resources of the areas waterward of the OHWM.
- **Natural** – The designation protects those shoreline areas that are relatively free of human influence or that include intact or minimally degraded shoreline ecological functions less tolerant of human use. These systems require that only very low-intensity uses be allowed in order to maintain the ecological functions and ecosystem-wide processes. Consistent with the policies of the designation, restoration of degraded shorelines within this environment is appropriate.
- **Urban Conservancy** – The designation protects and restores ecological functions of open space, floodplain, and other sensitive lands where they exist in urban and developed settings while allowing a variety of compatible uses.
- **Public Flood Protection** – The designation provides flood protection features, while protecting shoreline ecological functions with limitations imposed by the flood protection features, and provides recreational opportunities. In addition to existing levees, examples of uses that are appropriate in a Public Flood Protection shoreline designation include public access and recreation uses consistent with the protection of public safety and property by the flood protection features.
- **Recreation** – The designation provides for water-oriented recreational uses with some commercial uses to support recreational uses while protecting existing ecological functions, conserving existing natural resources, and restoring ecological functions in areas that have been previously degraded.
- **High Intensity** – The designation provides for public and private commercial and industrial uses that need a shoreline location for operation and are associated with water-oriented commerce and industry. Examples of appropriate uses include water-oriented commercial uses, water supply diversion, transportation, navigation uses, barge and conveyance facilities, and similar uses. This environment may also provide

for some recreation while protecting existing ecological functions and restoring ecological functions in areas that have been previously degraded.

- **High Intensity Mixed Use** – The designation provides for public and private commercial and employment uses to accommodate land uses such as office, retail, transportation, and mixed use developments, along with water related and water enjoyment uses. This environment may also provide for recreation, while protecting existing ecological functions and restoring ecological functions in areas that have been previously degraded.
- **Residential** – The designation provides primarily residential development and appurtenant structures but also allow other types of development consistent with this designation. An additional purpose is to provide for appropriate public access and recreational uses.

4.5 Exempt Activities

The following types of developments are exempt from substantial development permit requirements (WAC 173-27-040). However, these activities must comply with all development standards, such as setbacks and other regulations in the local SMP.

- **Normal maintenance or repair of existing structures** – Maintenance or repair of existing lawful structures and developments is exempted when they are subject to damage by accident, fire, or the elements.
- **Owner-occupied single-family residences** – These residences are exempt when they are less than 35 feet above ground level. This exemption includes appurtenant structures such as garages, decks, driveways, fences, utilities, and earthwork totaling less than 250 cubic yards of material.
- **Building bulkheads to protect single-family residences** – State rules specify that a bulkhead should be installed at or near the OHWM and be for the sole purpose of protecting an existing single-family residence and/or appurtenant structures. A bulkhead cannot be exempted if constructed for the purpose of creating dry land.
- **Constructing docks designed for pleasure craft** – This exemption is for a dock designed for pleasure craft only and for the private noncommercial use of the owner, lessee, or contract purchaser of single- and multiple-family residences. The fair market value of the dock should not exceed \$10,000 in fresh waters.

- **Certain farming and ranching construction and practices** – These practices include feedlots, processing plants, and other commercial ventures; irrigation and drainage activities, including operation and maintenance of existing canals, reservoirs, and irrigation facilities; and operation of dikes, ditches, drains, and other facilities existing on September 8, 1975.
- **Emergency construction to protect property from the elements** – This exemption applies for emergency construction that is necessary to protect property from damage by the elements. Emergency construction does not include building new permanent protective structures which previously did not exist. Restoration actions include controlling aquatic noxious weeds; improving fish or wildlife habitat or fish passage; cleaning toxic waste; controlling weeds; or restoring watersheds. A special kind of exemption, defined in the Model Toxic Control Act RCW 70.105D, is exempt from all procedural requirements but not substantive requirements of the SMA and the local SMP.
- **Site exploration and investigation activities** – Activities performed in preparation for applying for a development authorization are exempt if they conform to conditions listed in RCW 90.58.030.(3).(e).xi.
- **Building navigation aids and marking property lines** – Navigational aids such as channel markers and anchor buoys are exempt from permit requirements.

4.6 Response to Unanticipated Impacts

Policies within the SMP provide the process for protecting shoreline ecological function from anticipated and unanticipated development through the environment designations, setbacks, and mitigation standards. Additional provisions for unanticipated development, conditional uses, and unique development situations are as follows:

- A reasonable description of shoreline uses through the environment designations
- Buffers and setbacks
- Public input required for conditional use permitted development
- Review by the City and Ecology for conditional use permitted development and variances
- Civil penalties for unauthorized development
- SMP provides a strict no net loss policy

- The Restoration Plan (Anchor QEA 2015) provides actions to improve habitat over current conditions and also provide ideas for how to mitigate for development impacts

5 ASSESSMENT OF CUMULATIVE IMPACTS

The assessment of cumulative impacts combines existing conditions and environment designations and anticipated development by proposed environment designation with the potential ecological risks that characterize unregulated development. The provisions within the proposed SMP that can address the risks to ecological functions are also identified, allowing an assessment of the future performance of net effect. Table 4 summarizes these elements for each shoreline reach.

Anticipated development is based on a qualitative land capacity analysis and discussions with City planners through the environment designation development process. The environment designations also determine permitted, permitted as an accessory unit, permitted as special use, and prohibited uses of the shoreline as shown in the Use Tables within the SMP regulations.

**Table 4
Pasco Cumulative Impacts Analysis**

Location	Environment Designations	Level of Existing Function	Types of Anticipated Development	Degree of Impact to Ecological Functions	Provisions to Address Risk	Future Performance/Net Effect
Reach 1	Shoreline Residential	Partially Functioning	27 units of residential development	Hydrology: Moderate Sediment: Low Water Quality: Moderate Habitat: Moderate	<p>Residential development provisions (29.01.420)</p> <ol style="list-style-type: none"> (1) Single-family residential development is a preferred use when it is developed in a manner consistent with SMP provisions. (2) Residential development shall be located and constructed to result in no net loss of shoreline ecological function. (3) Lots for residential use shall have a maximum density consistent with City's Comprehensive Plan and zoning regulations. (4) Accessory uses and structures shall be located outside of the riparian buffer, unless the structure is or supports a water-dependent use. Storage structures to support water-related uses are not water-dependent uses, and therefore, shall be located outside of the riparian buffer. (5) All residential development shall be located or designed in such a manner as to prevent measurable degradation of water quality from stormwater runoff. Adequate mitigation measures shall be required and implemented where there is the reasonable potential for such adverse effect on water quality. (6) New shoreline residences and appurtenant structures shall be sufficiently set back from steep slopes and shorelines vulnerable to erosion so structural improvements, including bluff walls and other shoreline stabilization and flood control structures, are not necessary to protect proposed residences and associated uses. (7) New floating residences and overwater residential structures shall be prohibited in shoreline jurisdiction. (8) New, multi-unit residential development, including duplexes, fourplexes, and the subdivision of land into five or more lots, shall make adequate provisions for public access consistent with the regulations set forth in PMC 29.01.260, Public Access. (9) New residential development shall connect with sewer systems, as required by the PMC. (10) All new residential development shall meet the vegetation management provisions contained in PMC 29.01.240, Shoreline Vegetation Conservation, and PMC 29.01.530, Fish and Wildlife Habitat Conservation Areas. (11) Residential development clustering may be required by the Shoreline Administrator where appropriate to minimize ecological and visual impacts on shorelines, including minimization of impacts on shoreline vegetation consistent with PMC 29.01.240, Shoreline Vegetation Conservation. <p>Piers and Docks provisions (29.01.400) – a selection</p> <ol style="list-style-type: none"> (9) New moorage to serve a single-family residence may be allowed only if: <ol style="list-style-type: none"> (a) It is consistent with the USACE McNary Pool Management Plan. 	<p>The Shoreline Residential environment designation was applied to impacted areas that are suitable for future development or redevelopment based upon existing impairment of ecological functions. Impacts to remaining ecological functions in this reach will be avoided, minimized, and mitigated per the SMP provisions described in the Provisions to Address Risk column.</p> <p>Wetland buffers will be applied based upon wetland type and land use intensity to protect wetland functions. Riparian buffers will be applied to protect both riparian and upland habitat, water quality, and other functions. Additionally, environmental and water quality protection and vegetation conservation provisions will be applied to protect shoreline functions from future development. Unavoidable impacts from future development will be mitigated consistent with mitigation sequencing provisions. Private residential development could be as many as 27 units within the Shoreline Residential area. Any dock development for these units would require mitigation under the McNary Pool Management Plan.</p> <p>No net loss of ecological function is anticipated as SMP provisions are strictly enforced.</p>

Location	Environment Designations	Level of Existing Function	Types of Anticipated Development	Degree of Impact to Ecological Functions	Provisions to Address Risk	Future Performance/Net Effect
					<p>(b) An applicant demonstrates that existing facilities (boat launches and public and private marinas) are not reasonably available to meet demand.</p> <p>(c) The lot does not have access to shared moorage in an existing subdivision, and there is no homeowners association or other corporate entity capable of developing shared moorage.</p> <p>(d) In cases where a new dock or pier is approved, the City may require an agreement to share the dock with nearby residences with water frontage and provide for expansion to serve such additional users.</p> <p>(10) A dock or pier serving a single-family residence shall meet the following standards:</p> <p>(a) Piers and Ramps:</p> <p>(i) To prevent damage to shallow-water habitat, piers and ramps shall extend at least 40 feet perpendicular from the OHWM. In some instances and sites, it may not be practical to extend a ramp 40 feet from OHWM (for instance, where this could conflict with navigation). The City may grant exceptions on a case-by-case basis depending on documentation of specific limitation that exist and in coordination with other permitting agencies.</p> <p>(ii) Piers and ramps shall be no more than 4 feet in width.</p> <p>(iii) The bottom of either the pier or landward edge of the ramp shall be elevated at least 2 feet above the plane of OHWM.</p> <p>(iv) Grating shall cover the entire surface area (100%) of the pier or ramp. The open area of grating shall be at least 50%, as rated by the manufacturer.</p> <p>(v) Skirting shall not be placed on piers, ramps, or floats. Protective bumper material will be allowed along the outside edge of the float, as long as the material does not extend below the bottom edge of the float frame or impede light penetration.</p> <p>(vi) Shoreline concrete anchors must be placed at least 10 feet landward from the OHWM and shall be sized no larger than 4 feet wide by 4 feet long, unless otherwise approved by the City, NMFS, USACE, and WDFW. The maximum anchor height shall be only what is necessary to elevate the bottom of either the pier or landward edge of the ramp at least 2 feet above the plane of OHWM. The intent of this criterion is to limit impacts to riparian vegetation along the shoreline. The City may grant exceptions from the 10-foot landward requirement if site conditions warrant. Exceptions shall be made on a case-by-case basis and based on documentation of a specific limitation that exists and in coordination with other permitting agencies.</p> <p>(b) Preservatives:</p> <p>(i) The dock shall be built with materials that do not leach preservatives or other materials.</p> <p>(ii) No treated wood of any kind shall be used on any overwater structure (float, pier, or ramp).</p>	

Location	Environment Designations	Level of Existing Function	Types of Anticipated Development	Degree of Impact to Ecological Functions	Provisions to Address Risk	Future Performance/Net Effect
					<ul style="list-style-type: none"> (iii) No paint, stain, or preservative shall be applied to the overwater structure. (c) General: <ul style="list-style-type: none"> (i) No electricity shall be provided to, or on, the overwater structure. (ii) No boat lifts or watercraft lifts (e.g., Jet Ski lifts) of any type will be placed on, or in addition to, the overwater structure. The City may grant exceptions on a case-by-case basis in coordination with other permitting agencies if the applicant can demonstrate that the proposed boat lift meets the intent of the criteria to minimize structure, maximize light penetration, and maximize depth. However, these structures must meet the size criteria of the plan (total 160 square feet). (iii) Shoreline armoring (i.e., bulkheads, riprap, and retaining walls) shall not occur in association with installation of the overwater structure. (iv) Construction of the overwater structure shall be completed during the in-water work window (November 1 to February 28). (d) Piling and Float Anchors: <ul style="list-style-type: none"> (i) Piling shall not exceed 8 inches in diameter. The intent of this criterion is not to require existing pilings to be removed, cut, or capped, but to place limits on the size of new pilings. The City may grant exceptions to allow for larger pilings on a case-by-case basis and in coordination with other permitting agencies in areas where safety considerations merit it. (ii) Pilings shall be spaced at least 18 feet apart on the same side of any component of the overwater structure. The pier/ramp and float are separate components. (iii) Each overwater structure shall utilize no more than four piles total for the entire project. A combination of two piles and four helical anchors may be used in place of four piles. (iv) All pilings shall be fitted with devices to prevent perching by piscivorous (fish-eating) birds. (v) Submerged float anchors will be constructed from concrete and shall be horizontally compressed in form, by a factor of five or more, for a minimum profile above the stream bed (the horizontal length and width will be at least five times the vertical height). A helical screw anchor may be utilized where substrate allows. The owner shall be responsible for demonstrating feasibility and for proper installation such that anchor displacement does not occur. (vi) No in-water fill material will be allowed, with the exception of pilings and float anchors. (Note: uncured concrete or its by-products shall not be allowed.) (e) Floats: <ul style="list-style-type: none"> (i) Float components shall not exceed the dimensions of 8-by-20 feet, or an aggregate total of 160 square feet, for all float components. 	

Location	Environment Designations	Level of Existing Function	Types of Anticipated Development	Degree of Impact to Ecological Functions	Provisions to Address Risk	Future Performance/Net Effect
					<ul style="list-style-type: none"> (ii) Flotation materials shall be permanently encapsulated to prevent breakup into small pieces and dispersal in water (e.g., rectangular float tubs). (iii) Grating shall cover 100% of the surface area of the float(s). The open area of the grating shall be no less than 50%, as rated by the manufacturer. (iv) Functional grating will cover no less than 50% of the float. (v) Floats shall not be located in shallow-water habitat where they could ground or impede the passage or rearing of any salmonid life stage. (vi) Nothing shall be placed on the overwater structure that will reduce natural light penetration through the structure. (vii) Floats shall be positioned at least 40 feet horizontally from the OHWM and no more than 100 feet from the OHWM, as measured from the landward-most edge of the float. Adjustments to this requirement may be made on an individual basis where street compliance with this standard may present safety issues or be excessive for site conditions. (viii) Project construction shall cease during high-flow conditions that could result in inundation of the project area, except for efforts to avoid or minimize resource damage. (11) Shared residential docks and piers shall generally meet the standards for single family docks above, except that the number of floats and the size of piers and other facilities may be increased to serve additional slips to provide one moorage space per residence served. (12) Docks and piers shall be set back a minimum of 10 feet from side property lines, except that joint-use facilities may be located closer to, or upon, a side property line when agreed to by contract or covenant with the owners of the affected properties. This agreement shall be recorded with the County Auditor and a copy filed with the Shoreline Permit application. 	
Reach 1	Urban Conservancy	Functioning to Partially Functioning	None	Hydrology: Low Sediment: Low Water Quality: Low Habitat: Low		No development is anticipated. High priority restoration is planned, including riparian enhancement and off-channel habitat improvements, resulting in a net gain to ecological function.

Location	Environment Designations	Level of Existing Function	Types of Anticipated Development	Degree of Impact to Ecological Functions	Provisions to Address Risk	Future Performance/Net Effect
Reach 1	Natural	Functioning	None	Hydrology: Low Sediment: Low Water Quality: Low Habitat: Low		No development is anticipated. High priority restoration is planned, including riparian enhancement and off-channel habitat improvements, resulting in a net gain to ecological function.
Reach 1	Recreation	Functioning to Partially Functioning	Limited recreation related development	Hydrology: Moderate Sediment: Low Water Quality: Moderate Habitat: Moderate	<p>Recreation Provisions (29.01.410)</p> <p>(1) General Preferences:</p> <ul style="list-style-type: none"> (a) Recreational uses and facilities shall include features that relate to access, enjoyment, and use of the City's shorelines. (b) Both passive and active shoreline recreation uses are allowed. (c) Water-oriented recreational uses and activities are preferred in shoreline jurisdiction. Water dependent recreational uses shall be preferred as a first priority and water-related and water-enjoyment recreational uses as a second priority. (d) Existing passive recreational opportunities, including nature appreciation, non-motorized trails, public education regarding shoreline ecological functions and processes, environmental interpretation, and native habitat protection, shall be maintained. Opportunities incorporating educational and interpretive information shall be included in design and operation of recreation facilities and nature trails when feasible. (e) Preference shall be given to the development and enhancement of public access to the shoreline to increase fishing, boating, and other water-related recreational opportunities. <p>(2) General Performance Standards:</p> <ul style="list-style-type: none"> (a) The potential adverse impacts of all recreational uses shall be mitigated, and adequate provisions for shoreline rehabilitation shall be made part of any proposed recreational use or development to ensure no net loss of shoreline ecological function. (b) Sites with fragile and unique shoreline conditions, such as high-quality wetlands and wildlife habitats, shall be used only for non-intensive recreation activities such as trails, viewpoints, interpretive signage, and similar passive and low-impact facilities that result in no net loss of shoreline ecological function, and do not require the construction and placement of permanent structures. (c) For proposed recreation developments that require the use of fertilizers, pesticides, or other toxic chemicals, the proponent shall specify the BMPs to be 	<p>The Recreation environment designation was applied to impacted areas that are suitable for future recreational development or redevelopment based upon existing impairment of ecological functions. Impacts to remaining ecological functions in this reach will be avoided, minimized, and mitigated per the SMP provisions described in the Provisions to Address Risk column.</p> <p>Wetland buffers will be applied based upon wetland type and land use intensity to protect wetland functions. Riparian buffers will be applied to protect shoreline functions from future development. Unavoidable impacts from future development will be mitigated consistent with mitigation sequencing provisions.</p> <p>No net loss of ecological function is anticipated as SMP provisions are strictly enforced and restoration is implemented.</p>

Location	Environment Designations	Level of Existing Function	Types of Anticipated Development	Degree of Impact to Ecological Functions	Provisions to Address Risk	Future Performance/Net Effect
					<p>used to prevent these applications and resultant leachate from entering adjacent waters.</p> <p>(d) Recreational developments shall be located and designed to preserve, enhance, or create scenic views and vistas.</p> <p>(e) In approving shoreline recreational developments, the Shoreline Administrator shall ensure the development will maintain, enhance, or restore desirable shoreline features, including unique and fragile areas, scenic views, and aesthetic values. The Shoreline Administrator may, therefore, adjust or prescribe project dimensions, on-site location of project components, intensity of use, screening, lighting, parking, and setback requirements.</p> <p>(3) Signs indicating the public’s right to access shoreline areas shall be installed and maintained in conspicuous locations at all points of access.</p> <p>(4) Recreational developments shall provide facilities for non-motorized access to the shoreline, such as pedestrian and bicycle paths, and equestrian access, as applicable. New motorized vehicle access shall be located and managed to protect riparian, wetlands, and shrub-steppe habitat functions and value.</p> <p>(5) Proposals for recreational developments shall include a landscape plan indicating how native, self-sustaining vegetation is incorporated into the proposal to maintain ecological functions. The removal of on-site native vegetation shall be limited to the minimum necessary for the development of permitted structures or facilities and shall be consistent with provisions of PMC 29.01.240, Shoreline Vegetation Conservation, and PMC 29.01, Article V, Critical Areas.</p> <p>(6) Accessory uses and support facilities such as maintenance facilities, utilities, and other non-water-oriented uses shall be consolidated and located in upland areas outside shoreline, wetland, and riparian buffers unless such facilities, utilities, and uses are allowed in shoreline buffers based on the regulations of this SMP.</p> <p>(7) The placement of picnic tables, playground apparatus, and other similar minor components within the floodways shall be permitted, provided such structures are located and installed in such a manner as to prevent them from being swept away during a flood event.</p> <p>(8) Recreational facilities shall make adequate provisions, such as screening, landscaping buffer strips, fences, and signs, to prevent trespass on adjacent properties and to protect the value and enjoyment of adjacent or nearby private properties and natural areas, as applicable.</p> <p>(9) Recreational facilities or structures are only allowed to be built over water when they provide public access or facilitate a water-dependent use and shall be the minimum size necessary to accommodate the permitted activity.</p> <p>(10) Recreational developments shall make adequate provisions for:</p> <ul style="list-style-type: none"> (a) On-site and off-site access and, where appropriate, equestrian access; (b) Appropriate water supply and waste disposal methods; and (c) Security and fire protection. 	

Location	Environment Designations	Level of Existing Function	Types of Anticipated Development	Degree of Impact to Ecological Functions	Provisions to Address Risk	Future Performance/Net Effect
					<p>(11) Structures associated with recreational development shall not exceed 35 feet in height, except for as noted in PMC 29.01.210, Development Standards, when such structures document that the height above 35 feet will not obstruct the view of a substantial number of adjoining residences.</p> <p>(12) Recreational development shall minimize effective impervious surfaces in shoreline jurisdiction and incorporate low-impact development techniques.</p>	
Reach 2	Shoreline Residential	Partially Functioning	3 units	Hydrology: Moderate Sediment: Low Water Quality: Moderate Habitat: Moderate	See Residential (29.01.420) and Piers and Docks provisions (29.01.400) above.	<p>The Shoreline Residential environment designation was applied to impacted areas that are suitable for future development or redevelopment based upon existing impairment of ecological functions. Impacts to remaining ecological functions in this reach will be avoided, minimized, and mitigated per the SMP provisions described in the Provisions to Address Risk column.</p> <p>Wetland buffers will be applied based upon wetland type and land use intensity to protect wetland functions. Riparian buffers will be applied to protect both riparian and upland habitat, water quality, and other functions. Additionally, environmental and water quality protection and vegetation conservation provisions will be applied to protect shoreline functions from future development. Restoration and preservation efforts are planned for all reaches along the Sacajawea Heritage Trail corridor; programs could include establishing riparian buffers, protecting existing riparian and shrub-steppe habitat, and providing low-impact-development stormwater controls for new features associated with the trail. Unavoidable impacts from future development will be mitigated consistent with mitigation sequencing provisions. Private residential development could be as many as three units within the Shoreline Residential area. Any dock development for these units would require mitigation under the McNary Pool Management Plan.</p> <p>No net loss of ecological function is anticipated as SMP provisions are strictly enforced.</p>

Location	Environment Designations	Level of Existing Function	Types of Anticipated Development	Degree of Impact to Ecological Functions	Provisions to Address Risk	Future Performance/Net Effect
Reach 2	Recreation	Partially Functioning	Limited recreation related development	Hydrology: Low Sediment: Low Water Quality: Low Habitat: Low	See Recreation (29.01.410) provisions above.	<p>The Recreation environment designation was applied to impacted areas that are suitable for future recreational development or redevelopment based upon existing impairment of ecological functions. Impacts to remaining ecological functions in this reach will be avoided, minimized, and mitigated per the SMP provisions described in the Provisions to Address Risk column.</p> <p>Wetland buffers will be applied based upon wetland type and land use intensity to protect wetland functions. Riparian buffers will be applied to protect shoreline functions from future development. Restoration and preservation efforts are planned for all reaches along the Sacajawea Heritage Trail corridor; programs could include establishing riparian buffers, protecting existing riparian and shrub-steppe habitat, and providing low-impact-development stormwater controls for new features associated with the trail.</p> <p>Unavoidable impacts from future development will be mitigated consistent with mitigation sequencing provisions.</p> <p>No net loss of ecological function is anticipated as SMP provisions are strictly enforced and restoration is implemented.</p>
Reach 3	Recreation	Partially Functioning	Moderate recreation related development	Hydrology: Moderate Sediment: Low Water Quality: Moderate Habitat: Moderate	See Recreation (29.01.410) provisions above.	<p>The Recreation environment designation was applied to impacted areas that are suitable for future development or redevelopment based upon existing impairment of ecological functions. Impacts to remaining ecological functions in this reach will be avoided, minimized, and mitigated per the SMP provisions described in the Provisions to Address Risk column.</p> <p>Wetland buffers will be applied based upon wetland type and land use intensity to protect wetland functions. Riparian buffers will be applied to protect shoreline functions from future development. Restoration and preservation efforts are planned for all reaches along the Sacajawea Heritage Trail corridor; programs could include establishing riparian buffers, protecting existing riparian</p>

Location	Environment Designations	Level of Existing Function	Types of Anticipated Development	Degree of Impact to Ecological Functions	Provisions to Address Risk	Future Performance/Net Effect
						<p>and shrub-steppe habitat, and providing low-impact-development stormwater controls for new features associated with the trail.</p> <p>Unavoidable impacts from future development will be mitigated consistent with mitigation sequencing provisions.</p> <p>No net loss of ecological function is anticipated as SMP provisions are strictly enforced and restoration is implemented.</p>
Reach 3	Urban Conservancy	Partially Functioning	None	Hydrology: Low Sediment: Low Water Quality: Low Habitat: Low		No development is anticipated. High priority restoration within Sunset Acres is planned; program elements may include removing an old dock and enhancing and protecting existing riparian and shrub steppe habitat. Additionally, restoration and preservation efforts are planned for all reaches along the Sacajawea Heritage Trail corridor as described above. These efforts will result in a net gain to ecological function.
Reach 3	Natural	Partially Functioning	None	Hydrology: Low Sediment: Low Water Quality: Low Habitat: Low		No development is anticipated. High priority restoration is planned along the Sacajawea Heritage Trail corridor, resulting in a net gain to ecological function.

Location	Environment Designations	Level of Existing Function	Types of Anticipated Development	Degree of Impact to Ecological Functions	Provisions to Address Risk	Future Performance/Net Effect
Reach 4	Public Flood Protection and Recreation	Impaired (Public Flood Protection) and Partially Functioning (Recreation)	Moderate recreation related development	Hydrology: Moderate Sediment: Low Water Quality: Moderate Habitat: Moderate	See Recreation (29.01.410) provisions above.	<p>The Recreation and Public Flood Protection environment designations were applied to impacted areas that are suitable for future development or redevelopment based upon existing impairment of ecological functions. Impacts to remaining ecological functions in this reach will be avoided, minimized, and mitigated per the SMP provisions described in the Provisions to Address Risk column.</p> <p>Wetland buffers will be applied based upon wetland type and land use intensity to protect wetland functions. Riparian buffers will be applied to protect shoreline functions from future development. Restoration and preservation efforts are planned for all reaches along the Sacajawea Heritage Trail corridor; programs could include establishing riparian buffers, protecting existing riparian and shrub-steppe habitat, and providing low-impact-development stormwater controls for new features associated with the trail.</p> <p>Unavoidable impacts from future development will be mitigated consistent with mitigation sequencing provisions.</p> <p>No net loss of ecological function is anticipated as SMP provisions are strictly enforced and restoration is implemented.</p>
Reach 4	Natural	Partially Functioning	None	Hydrology: Low Sediment: Low Water Quality: Low Habitat: Low		No development is anticipated. High priority restoration is planned along the Sacajawea Heritage Trail corridor, resulting in a net gain to ecological function.
Reach 5	Public Flood Protection and Recreation	Impaired and Partially Functioning	Moderate recreation related development	Hydrology: Moderate Sediment: Low Water Quality: Moderate Habitat: Moderate	See Recreation (29.01.410) provisions above.	<p>The Recreation and Public Flood Protection environment designations were applied to impacted areas that are suitable for future development or redevelopment based upon existing impairment of ecological functions. Impacts to remaining ecological functions in this reach will be avoided, minimized, and mitigated per the SMP provisions described in the Provisions to Address Risk column.</p> <p>Wetland buffers will be applied based upon wetland type and land use intensity to protect wetland functions. Riparian buffers will be applied to protect shoreline</p>

Location	Environment Designations	Level of Existing Function	Types of Anticipated Development	Degree of Impact to Ecological Functions	Provisions to Address Risk	Future Performance/Net Effect
						<p>functions from future development. Restoration plans for Riverview Park include improving open water habitat at the east end of the park and removing invasive species such as Russian Olive. Additionally, restoration and preservation efforts are planned for all reaches along the Sacajawea Heritage Trail corridor as described above. Unavoidable impacts from future development will be mitigated consistent with mitigation sequencing provisions.</p> <p>No net loss of ecological function is anticipated as SMP provisions are strictly enforced and restoration is implemented.</p>
Reach 5	High Intensity	Impaired	Industrial Development	Hydrology: Moderate Sediment: Low Water Quality: Moderate Habitat: Moderate	<p>Industrial Development Provisions (29.01.370)</p> <ol style="list-style-type: none"> (1) Water-dependent industrial development shall be given priority over non-water-dependent commercial uses within shoreline environments. Secondly, water-related and water-oriented uses shall be given priority over non-water-oriented commercial uses. (2) Non-water-oriented industrial uses shall be allowed if they can demonstrate one or more of the following: <ol style="list-style-type: none"> (a) The industrial use is part of a mixed-use project that includes water dependent uses and provides a significant public benefit with respect to the objectives of the SMA. (b) Navigability is severely limited at the proposed site, including opportunities for non-motorized boating or other water-oriented uses. (c) The industrial use is physically separated from the shoreline by another property, public right-of-way, or levee. (d) The industrial use is farther upland than 200 feet from the OHWM; therefore, a water-oriented use is not a viable option. (3) Where industrial use is proposed for location on land in public ownership, public access should be required unless such public access is demonstrated by the proponent to be infeasible or inappropriate for the shoreline pursuant to PMC 29.01.260, Public Access. (4) Industrial uses shall provide for suitable measures to rehabilitate and enhance the shoreline ecology as a condition of approval. (5) Non-water-oriented industrial uses shall not be allowed over water in any shoreline environment. (6) All industrial loading and service areas shall be located upland or away from the shoreline, except when loading services are water-dependent such as barge 	<p>The High Intensity environment designation was applied to impacted areas that are suitable for future development or redevelopment based upon existing impairment of ecological functions and functional breaks from existing development. Impacts to remaining ecological functions in this reach will be avoided, minimized, and mitigated per the SMP provisions described in the Provisions to Address Risk column.</p> <p>Wetland and riparian buffers will be applied to protect both riparian and upland habitat, water quality, and other functions. Additionally, environmental and water quality protection and vegetation conservation provisions will be applied to protect shoreline functions from future development. Restoration and preservation efforts are planned for all reaches along the Sacajawea Heritage Trail corridor; programs could include establishing riparian buffers, protecting existing riparian and shrub-steppe habitat, and providing low-impact-development stormwater controls for new features associated with the trail. Unavoidable impacts from future development will be mitigated consistent with mitigation sequencing provisions.</p> <p>No net loss of ecological functions is anticipated as SMP provisions are strictly enforced, and protection and restoration actions are implemented.</p>

Location	Environment Designations	Level of Existing Function	Types of Anticipated Development	Degree of Impact to Ecological Functions	Provisions to Address Risk	Future Performance/Net Effect
					<p>facilities. Provisions shall be made to screen upland loading areas with walls, fences, and landscaping and to minimize aesthetic impacts.</p> <p>(7) The new storage of potentially hazardous or dangerous substances or wastes is prohibited in the floodway or within 200 feet of the OHWM, whichever boundary extends farthest landward.</p> <p>(8) Industrial development will be located, designed, or constructed in a manner that ensures no net loss of shoreline ecological functions and such that it does not have significant adverse impacts to other shoreline resources and values.</p>	
Reach 6	High Intensity – Mixed Use	Impaired	One mixed-use building with parking lot	Hydrology: Moderate Sediment: Low Water Quality: Moderate Habitat: Moderate	<p>Commercial Development Provisions (29.01.340)</p> <p>1) Water-dependent commercial development shall be given priority over non-water-dependent commercial uses within shoreline environments. Secondly, water-related and water-oriented uses shall be given priority over non-water-oriented commercial uses.</p> <p>(2) Non-water-oriented commercial uses shall be allowed if they can demonstrate at least one or more of the following:</p> <p>(a) The commercial use is part of a mixed-use project that includes water-dependent uses and provides a significant public benefit with respect to the objectives of the SMA.</p> <p>(b) Navigability is severely limited at the proposed site, including opportunities for non-motorized boating or other water-oriented uses.</p> <p>(c) The commercial use is physically separated from the shoreline by another property, public right-of-way, or levee.</p> <p>(d) The commercial use is farther upland than 200 feet from the OHWM; therefore, a water-oriented use is not a viable option.</p> <p>(3) Non-water-oriented uses, including, but not limited to, residential uses, may be located with water-oriented commercial uses, provided:</p> <p>(a) The mixed-use project includes one or more water-dependent uses.</p> <p>(b) Water-dependent commercial uses, as well as other water-oriented commercial uses, have preferential locations along the shoreline.</p> <p>(c) The underlying zoning district permits residential uses together with commercial uses.</p> <p>(d) Public access is provided and/or ecological restoration is provided as a public benefit.</p> <p>(4) Review Criteria. The City shall utilize the following information in its review of all commercial development applications:</p> <p>(a) Whether there is a water-oriented aspect of the proposed commercial use or activity when it is located within 200 feet of the OHWM;</p> <p>(b) Whether the proposed commercial use is consistent with the Shoreline Use and Modification Matrix (PMC 29.01.200 (2));</p> <p>(c) Whether the application has the ability to enhance compatibility with the shoreline environment and adjacent uses;</p>	<p>The High Intensity – Mixed use environment designation was applied to impacted areas that are suitable for future development or redevelopment based upon existing impairment of ecological functions and functional breaks from existing development. Impacts to remaining ecological functions in this reach will be avoided, minimized, and mitigated per the SMP provisions described in the Provisions to Address Risk column.</p> <p>Wetland and riparian buffers will be applied to protect both riparian and upland habitat, water quality, and other functions. Additionally, environmental and water quality protection and vegetation conservation provisions will be applied to protect shoreline functions from future development. Restoration and preservation efforts are planned for all reaches along the Sacajawea Heritage Trail corridor and also for areas near Osprey Pointe; programs could include establishing riparian buffers, protecting existing riparian and shrub-steppe habitat, and providing low-impact-development stormwater controls for new features associated with the trail. Unavoidable impacts from future development will be mitigated consistent with mitigation sequencing provisions.</p> <p>No net loss of ecological functions is anticipated as SMP provisions are strictly enforced, and protection and restoration actions are implemented.</p>

Location	Environment Designations	Level of Existing Function	Types of Anticipated Development	Degree of Impact to Ecological Functions	Provisions to Address Risk	Future Performance/Net Effect
					<p>(d) Whether adequate provisions are made for public and private visual and physical shoreline access; and</p> <p>(e) Whether the application makes adequate provisions to prevent adverse environmental impacts and provide for shoreline ecological or critical area mitigation, where appropriate.</p> <p>(5) Commercial development shall be designed and maintained in a manner compatible with the character and features of surrounding areas. Developments are encouraged to incorporate low-impact development techniques into new and existing projects and integrate architectural and landscape elements that recognize the river and lake environments. The City may prescribe and modify project dimensions, screening standards, setbacks, or operation intensities to achieve this purpose.</p> <p>(6) Eating and drinking facilities and lodging facilities shall be oriented to provide views to the waterfront, when such view is available from the site.</p> <p>(7) Commercial uses shall provide for public access as a condition of approval, unless such public access is demonstrated by the proponent to be infeasible or inappropriate for the shoreline pursuant to PMC 29.01.260, Public Access.</p> <p>(8) Commercial uses shall provide for suitable measures to rehabilitate and enhance the shoreline ecology as a condition of approval.</p> <p>(9) Non-water-oriented commercial uses shall not be allowed over water in any shoreline environment.</p> <p>(10) All commercial loading and service areas shall be located upland or away from the shoreline. Provisions shall be made to screen such areas with walls, fences, and landscaping and to minimize aesthetic impacts.</p> <p>(11) The storage of potentially hazardous or dangerous substances or wastes is prohibited in the floodway or within 200 feet of the OHWM, whichever boundary extends farthest landward.</p> <p>(12) Development shall be located, designed, and constructed in a manner that ensures no net loss of shoreline ecological functions and without significant adverse impacts on other preferred land uses and public access features.</p>	
Reach 6	Recreation and High Intensity	Partially Functioning	Moderate recreation related development	Hydrology: Moderate Sediment: Low Water Quality: Moderate Habitat: Moderate	See Recreation (29.01.410) provisions above.	<p>The Recreation and High Intensity environment designations were applied to impacted areas that are suitable for future development or redevelopment based upon existing impairment of ecological functions. Impacts to remaining ecological functions in this reach will be avoided, minimized, and mitigated per the SMP provisions described in the Provisions to Address Risk column.</p> <p>Wetland buffers will be applied based upon wetland type and land use intensity to protect wetland functions. Riparian buffers will be applied to protect shoreline</p>

Location	Environment Designations	Level of Existing Function	Types of Anticipated Development	Degree of Impact to Ecological Functions	Provisions to Address Risk	Future Performance/Net Effect
						<p>functions from future development. Restoration and preservation efforts are planned for all reaches along the Sacajawea Heritage Trail corridor and also within Sacajawea State Park; programs could include restoring off-channel habitat within the park, establishing riparian buffers, protecting existing riparian and shrub-steppe habitat, and providing low-impact-development stormwater controls for new features associated with the trail. Unavoidable impacts from future development will be mitigated consistent with mitigation sequencing provisions.</p> <p>No net loss of ecological function is anticipated as SMP provisions are strictly enforced and restoration is implemented.</p>
Reach 6	Natural	Partially Functioning	None	Hydrology: Low Sediment: Low Water Quality: Low Habitat: Low		No development is anticipated.
Reach 7	Recreation and Urban Conservancy	Partially Functioning	Moderate recreation related development	Hydrology: Moderate Sediment: Low Water Quality: Moderate Habitat: Moderate	See Recreation (29.01.410) provisions above.	<p>The Recreation and Urban Conservancy environment designations were applied to impacted areas that are suitable for future development or redevelopment based upon existing impairment of ecological functions. Impacts to remaining ecological functions in this reach will be avoided, minimized, and mitigated per the SMP provisions described in the Provisions to Address Risk column.</p> <p>Wetland buffers will be applied based upon wetland type and land use intensity to protect wetland functions. Riparian buffers will be applied to protect shoreline functions from future development. Restoration and preservation efforts are planned for all reaches along the Sacajawea Heritage Trail corridor and also within Sacajawea State Park; programs could include restoring off-channel habitat within the park, establishing riparian buffers, protecting existing riparian and shrub-steppe habitat, and providing low-impact-development stormwater controls for new features associated with the trail. Unavoidable impacts from future development will be mitigated consistent with mitigation sequencing provisions.</p>

Location	Environment Designations	Level of Existing Function	Types of Anticipated Development	Degree of Impact to Ecological Functions	Provisions to Address Risk	Future Performance/Net Effect
						No net loss of ecological function is anticipated as SMP provisions are strictly enforced and restoration is implemented.
Reach 8	High Intensity and Urban Conservancy	Partially Functioning and Impaired	Moderate recreation related development	Hydrology: Moderate Sediment: Low Water Quality: Moderate Habitat: Moderate	See Recreation (29.01.410) provisions above.	<p>The High Intensity and Urban Conservancy environment designations were applied to impacted areas that are suitable for future development or redevelopment based upon existing impairment of ecological functions. Impacts to remaining ecological functions in this reach will be avoided, minimized, and mitigated per the SMP provisions described in the Provisions to Address Risk column.</p> <p>Wetland buffers will be applied based upon wetland type and land use intensity to protect wetland functions. Riparian buffers will be applied to protect shoreline functions from future development. Restoration and preservation efforts are planned for all reaches along the Sacajawea Heritage Trail corridor (this includes planned extensions of the trail within this reach); programs could include establishing riparian buffers, protecting existing riparian and shrub-steppe habitat, and providing low-impact-development stormwater controls for new features associated with the trail. Unavoidable impacts from future development will be mitigated consistent with mitigation sequencing provisions.</p> <p>No net loss of ecological function is anticipated as SMP provisions are strictly enforced and restoration is implemented.</p>

Notes:
 BMP = best management practice
 NMFS = National Marine Fisheries Service
 OHWM = ordinary high water mark
 PMC = Pasco Municipal Code
 RR = Regulatory Reach
 SMA = Shoreline Management Act
 SMP = Shoreline Master Program
 USACE = U.S. Army Corps of Engineers
 WDFW = Washington Department of Fish and Wildlife

As described in Table 4, the SMP will protect the baseline ecological functions within the City. The features that will provide this protection include the SMP environment designations and general requirements, and the shoreline modification and use provisions. The Restoration Plan (Anchor QEA 2015) identifies actions to improve ecological functions over time. The SMP is expected to accommodate reasonable foreseeable shoreline development while affording these protections and restoration initiatives throughout the next 20 years. All of these provisions will result in no net loss of shoreline ecological function in the City and may actually lead to an improvement or gain of ecological function over time.

6 REFERENCES

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