Agenda

REGULAR CITY COUNCIL WORKSHOP
Richland City Hall ~ 505 Swift Boulevard
Tuesday, April 29, 2014

City Council Regular Workshop, 6:00 p.m.

(Discussion Only - City Hall Council Chamber)

Welcome and Roll Call

Agenda Items:

1. Shoreline Master Program (30 minutes)
   - Rick Simon, Development Services Manager
2. South Richland Sewer Study (30 minutes)
   - Pete Rogalsky, Public Works Director

Executive Session:

1. Executive Session Per RCW 42.30.140 (4): Discuss Collective Bargaining Negotiations (60 minutes)
   - Heather Kintzley, City Attorney - Allison Jubb, HR Director

Adjournment

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Council Workshop Coversheet

Council Date: 04/29/2014

Agenda Item : W1

Key Element: Key 5 - Natural Resources Management

Subject: SHORELINE MASTER PROGRAM UPDATE

Department: Community and Development Services

Document Type: Discussion

Summary:

The current City Shoreline Master Program (SMP) was adopted in 1979 and has been in place without amendment since then. It serves to regulate development that occurs adjacent to the Columbia and Yakima rivers within the City. The regulations are required under the State Shoreline Management Act and now, by state mandate, they need to be updated. The City is required to develop and adopt both a plan for the management of its shoreline areas and regulations that would implement that plan. Together the plan and regulations comprise the master program. The City, through a grant from the Department of Ecology has hired a consultant - Anchor QEA to complete this work.

The Shoreline Act has three basic purposes, which can be summarized as: 1) Protection of the environmental resources of the state's shorelines; 2) Promotion of public access to the shorelines; and 3) Priority to types of land uses that require a location on the shoreline. Under the updated provisions in the state code, some new standards have to be implemented. Cities must comply with a "no net loss" policy to ecological functions. The City is responsible to evaluate current shoreline conditions and identify existing shoreline ecological functions. Future development of shoreline areas is then regulated so that it will not result in a loss of ecological function. Cities have some latitude in determining how existing functions should be protected and if future development results in loss of function in one location, then corresponding mitigation with restoration activities in another shoreline location must off-set those losses. The state requires that cities provide a cumulative impact analysis for reasonably foreseeable activities that may occur within shoreline areas and include a shoreline restoration plan.

The following documents have been prepared by the consultant, reviewed by the Planning Commission and recommended to Council for approval. In total, they represent the City's response to the SMP update requirements:

- Shoreline Inventory, Analysis and Characterization Report
- Shoreline Master Program
- Cumulative Impact Analysis
- Restoration Plan
- Shoreline Designation Maps

The next step in the shoreline update process is for the Council to hold a public hearing to consider adoption of the draft shoreline program. Upon Council approval, the document will be sent off to the Department of Ecology for their review. The program does not take effect until Ecology has determined that it is consistent with state requirements. At that point, it would then become law for the City.

Attachments:

1) Inventory, Analysis & Characterization Report
2) Shoreline Master Progarm
3) Cumulative Impacts Analysis
4) Restoration Plan
5) Regulatory Reaches Map

Post Council Status: Pending

City Manager Approved: Hopkins, Marcia
Apr 24, 10:47:31 GMT-0700 2014

DRAFT SHORELINE INVENTORY, ANALYSIS, AND CHARACTERIZATION REPORT

RICHLAND SHORELINE MASTER PROGRAM UPDATE

Prepared for

City of Richland

Prepared by

Anchor QEA, LLC

8033 W. Grandridge Blvd., Suite A

Kennewick, Washington 99336

Prepared with assistance from

Berk Consulting

Parametrix, Inc.

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May 2013

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Appendix A Reach Characterization Tables

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LIST OF ACRONYMS AND ABBREVIATIONS

%	percent
°C	degrees Celsius
ALEP	Arid Lands Ecology Preserve
BLM	U.S. Bureau of Land Management
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cfs	cubic feet per second
City	City of Richland
CRB	Columbia River Basalt
DAHP	Washington State Department of Archaeology and Historic Preservation
DART	Data Access in Real Time
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
Ecology	Washington State Department of Ecology
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
GIS	Geographic Information System
HPA	Hydraulic Project Approval
HRNM	Hanford Reach National Monument
Integrated Plan	Integrated Water Resource Management Plan
MTCA	Model Toxics Control Act
NEPA	National Environmental Policy Act
NWI	National Wetlands Inventory
OHWM	ordinary high water mark
ppm	parts per million
RCRA	Resource Conservation and Recovery Act
RCW	Revised Code of Washington
SEPA	State Environmental Policy Act
SMA	Shoreline Management Act
SMP	Shoreline Master Program
SR	State Route
TMDL	total maximum daily load
UGA	urban growth area
USBR	U.S. Bureau of Reclamation
USDA	U.S. Department of Agriculture

USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WAC	Washington Administrative Code
WDFW	Washington State Department of Fish and Wildlife
WSU	Washington State University

1 INTRODUCTION

1.1 Background and Purpose

The City of Richland (City) received grant funding from the Washington State Department of Ecology (Ecology) to develop an updated Shoreline Master Program (SMP). A primary purpose of this effort is to update the SMP to comply with Chapter 90.58 Revised Code of Washington (RCW), the Shoreline Management Act (SMA), and Ecology's 2003 Shoreline Master Program Guidelines (Chapter 173-26 Washington Administrative Code [WAC]).

The Inventory, Analysis, and Characterization Report is a foundational step for the SMP. This report includes a discussion of the setting and ecosystem-wide processes that influence ecological functions within Richland shorelines. The report also addresses alterations based on existing land use patterns and future potential development within the shoreline jurisdiction areas. Inventory, analysis and characterization tables summarizing conditions by reach for the Yakima and Columbia Rivers are provided in Appendix A. A map folio is provided in Appendix B.

The guidelines require the City to demonstrate that the SMP will result in "no net loss" to shoreline ecological functions during implementation. This report will serve to describe the existing baseline conditions of shoreline ecological function. An associated Shoreline Restoration and Protection Plan and Cumulative Impacts Analysis will follow development of the draft program and code elements. The cumulative impacts analysis will demonstrate how future development under the proposed SMP will result in no net loss of shoreline ecological function. The restoration measures described in the Shoreline Restoration and Protection Plan could be implemented to improve shoreline ecological functions beyond existing conditions.

1.2 Report Organization

The report is organized in the following sections:

- Regulatory Overview describes the SMA; local, state, and federal regulations, and cultural resource considerations.
- Shoreline Jurisdiction reviews the data and analysis used to determine the shoreline jurisdiction waterbodies and extents of the SMA shoreline jurisdiction.

- Richland Overview provides a description of the project area, including ownership and land cover characteristics, land use and SMP environment designations, geology, climate, surface water resources, water quality, floodplains and floodways, channel migration zones, and geologic hazard characteristics.
- Shoreline Inventory, Analysis, and Characterization describe the ecosystem processes and the level to which they are currently impaired or altered. The processes most critical to ecological functions are described for the Columbia and Yakima rivers. Also included are a review of the reach characterization methods and overview of inventory, analysis, and characterization tables.
- Public Access identifies existing public access goals and policies.
- Land Capacity Analysis identifies developable lands and associated residential unit and commercial area available for specific geographic areas within the City.
- Information sources and limitations are also described.

2 REGULATORY OVERVIEW

2.1 Shoreline Management Act

Counties, cities, and towns develop or update local SMPs to be in compliance with Washington State's SMA (RCW 90.58), and consistent with Ecology's guidelines. The State of Washington's SMA addresses concerns about the effects of unregulated development on shorelines. The SMP update process indicates the joint state/local nature of the SMA program as local governments develop SMPs in close coordination with Ecology, informed by local opportunities and constraints, and consistent with state law and guidelines.

2.2 Local, State, and Federal Plans and Regulations

SMPs provide provisions to protect archaeological resources, historic resources, and environmentally critical areas within the shoreline, as well as to maintain flood hazard protection (WAC 173-26-221). Environmentally sensitive areas (critical areas) within Richland include wetlands, frequently flooded areas, critical aquifer recharge areas, geologically hazardous areas, and fish and wildlife habitat conservation areas.

In addition, federal, state, and City regulations also apply to these features. Federal regulations include the Clean Water Act, Sections 404 and 401, Endangered Species Act (ESA), Federal Water Pollution Control Act, National Environmental Policy Act (NEPA), and the National Floodplain Insurance Program. Federal regulations relevant to the Hanford Nuclear reservation in the northern part of the City and Urban Growth Area (UGA) include the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA).

State regulations are administered through the RCW and include the State Environmental Policy Act (SEPA), the Hydraulic Project Approval (HPA), the Bald Eagle Protection Rules, the Surface Mining Act, the State Water Code and Water Pollution Control Act, and the SMA. State law and regulation relevant to the Hanford Nuclear reservation in the northern part of the City and UGA include the Model Toxics Control Act (MTCA) Statute (RCW Chapter 70.105D and Chapter 64.70) and MTCA Cleanup Regulation WAC Chapter 173-340.

The City has an existing SMP and critical areas regulations for wetlands, frequently flooded areas, geologically hazardous areas, aquifer recharge areas, and fish and wildlife habitat conservation areas. These areas are identified, as applicable to the City, in the map folio. Table 1 includes a summary of these regulations.

Critical areas for each shoreline jurisdiction reach are also described within the flooding and geological hazards and habitat characteristics sections of the Reach Characterization Tables provided in Appendix A.

Table 1

Critical Areas Regulation Summary (as of 2013)

2.3 Cultural Resources and Shoreline Development

State and local cultural resources laws apply to shoreline development. State laws include RCW 27.53 (Archaeological Sites and Records), which prohibits the unpermitted removal of archaeological materials and establishes a permitting process, and RCW 27.44 (Indian Graves and Records) which describes how human remains must be treated.

Given the importance of shoreline locations throughout the human history of the area, the potential for cultural resources should be considered high for any shoreline development permit unless demonstrated otherwise. To comply with state and local law, applicants should be prepared to follow the provisions of RCW 27.53 and 27.44 if cultural resources are identified or encountered during the planning or construction process.

3 SHORELINE JURISDICTION ANALYSIS

The Washington state SMA defines the Shoreline of the State as "all 'shorelines' and 'shorelines of statewide significance' within the state" (RCW 90.58.030).

Shorelines are defined as:

> *"[A]ll of the water areas of the state, including reservoirs, and their associated shorelands, together with the lands underlying them; except*
>
> *(i) shorelines of statewide significance;*
>
> *(ii) shorelines on segments of streams upstream of a point where the mean annual flow is twenty cubic feet per second or less and the wetlands associated with such upstream segments; and*
>
> *(iii) shorelines on lakes less than twenty acres in size and wetlands associated with such small lakes."* (RCW 90.58.030)

Shorelines of statewide significance for east of the crest of the Cascade Mountains (RCW 90.58.030) are defined in the statute as:

(i) *"Those lakes, whether natural, artificial, or a combination thereof, with a surface acreage of one thousand acres or more measured at the ordinary high water mark; and*

(ii) *Streams or rivers (or segments of natural streams) "that have either: a mean annual flow of 200 cubic feet per second or more, or;*

(iii) *The portion downstream from the first 300 square miles of drainage area."*

Shorelands (also known as shoreland areas) are defined by the statute as:

> *"[T]hose lands extending landward for two hundred feet in all directions as measured on a horizontal plane from the ordinary high water mark; floodways and contiguous flood plain areas landward two hundred feet from such floodways; and all wetlands and river deltas associated with the streams, lakes, and tidal waters which are subject to the provisions of this chapter; the same to be designated as to location by the department of ecology. Any county or city may determine that portion of a one hundred-year flood plain to be included in its master program as long as such portion*

includes, as a minimum, the floodway and the adjacent land extending landward two hundred feet therefrom."

WAC Title 173, Chapter 18, Section 070 contains a listing of streams of statewide significance in Benton County, including the Columbia and Yakima rivers. Richland's shoreline jurisdiction waterbodies are the Columbia and Yakima rivers. No lakes or other streams have been determined to meet the shoreline jurisdiction definitions provided above.

3.1 Shoreline Master Program Jurisdiction Determination Methodology

Anchor QEA received Geographic Information System (GIS)-formatted datasets for the Yakima and Columbia rivers from the Benton County GIS department, the City, the U.S. Geological Survey (USGS), the U.S. Department of Agriculture (USDA), and the U.S. Fish and Wildlife Service (USFWS). These datasets contained information from a variety of sources on the Yakima River and potential shorelands within the City. To create a dataset representing the mapped extent of the shoreline jurisdiction within the City, Anchor QEA utilized the following information:

- The [waterbodies] dataset was buffered by 200 feet (horizontally) on all sides utilizing the estimated ordinary high water mark (OHWM).
- The National Wetlands Inventory (NWI) layer was dissolved to create a new layer that included all wetland areas without boundaries between wetlands differing in classifications.
- All wetlands that intersected the [waterbodies] dataset were selected and exported into a temporary dataset of potential associated wetlands.
- The potential associated wetlands were reviewed and areas determined to be separated by a clearly distinct upland area, such as a road or levee, from shoreline waters were removed from dataset of potential associated wetlands.
- The NWI dataset was then reviewed and wetlands that did not intersect the [waterbodies] layer in the GIS but clearly appeared to be associated wetlands in the imagery were included in the dataset of potential associated wetlands.

3.2 Study Area

Based on the shoreline jurisdiction analyses, the Yakima River and the Columbia River, with associated wetlands and floodway, were identified for inclusion in SMP jurisdiction. Both rivers are shorelines of statewide significance. The extent of the shoreline jurisdiction is shown in Map 2 of the map folio. *(NOTE: As of the date of this report, the Amon drainage within the City is still under evaluation as to whether it meets shoreline jurisdiction criteria. Limited hydrologic data is available for this area, which is managed by the Kennewick Irrigation District as a wasteway and return flow path for irrigation supply and drainage of the surrounding areas. Additional information will be provided once this evaluation is complete.)*

3.3 Reach Breaks

The analysis and characterization information in this report is organized using a system of analysis reaches and subreaches to represent variations in land use and geomorphic characteristics along the shoreline. Physical changes often translate into differences in the function of the shoreline with regards to ecological and physical processes, which in turn may influence the shoreline designation.

The reach delineation was performed by evaluating aerial photography, topographic data, geologic maps, and land cover data, which were compiled in a GIS database. Specific factors that influenced the delineation of stream reaches include channel and floodplain geomorphology, geologic controls, channel confinement and modification, hydrology, and irrigation practices. Subreaches were used in the analysis and characterization primarily to distinguish different patterns in land use, ownership, zoning, and level of development. Subreaches were delineated primarily where changes in land use, parcel density, or zoning affected the current or potential future ecosystem function.

A list of the reaches and subreaches for the Yakima and Columbia River shoreline jurisdiction areas within the City are provided in Table 2.

Table 2
Yakima and Columbia River Reaches

Waterbody	City/ UGA	Reach Label	Reach Description
Yakima	City	1	The shoreline within this reach extends about 4,000 feet along the left bank of the Yakima River and is agricultural land owned by the City of Richland; it is currently in agricultural use.
Yakima	City	2	The shoreline within this reach extends about 3,000 feet along the left bank of the Yakima River on an outer oxbow with a very narrow band of riparian vegetation on a steep slope up from the river. At the top of the slope is the Bluffs subdivision, which is part of the Horn Rapids Golf Course development. SMA jurisdiction of 200 feet from the OHWM extends to just below the top edge of the slope.
Yakima	City	3	The shoreline within this reach extends about 4 miles along the left bank of the Yakima River from north of Glen Road to the I-182 bridge. Land use is largely agriculture or large lot rural lands in lots of 2 to 10 acres to the border of the W.E. Johnson Park at about the alignment of Swift Boulevard. The park and lands to the south are in public ownership. This area is largely floodplain that ranges up to 3/4 of a mile wide to Glen Briar Lane. Between this point and the bridge, there is a narrow riparian corridor bounded by a steep slope.
Yakima	City	4	The shoreline within this reach extends about 3 miles along the river south of the I-182 bridge over the Yakima River extending to the I-182 bridge over the Columbia River and is floodplain under U.S. Army Corps of Engineers jurisdiction and adjacent uplands managed by the City of Richland.
Yakima	City	5	The shoreline within this reach extends about 8,300 feet along the right bank of the Yakima River from the City Limits at Northlake Drive to the I-182 Yakima River bridge.
Yakima	City	6	The shoreline within this reach extends along the right bank of the Yakima River from the I-182 Yakima River bridge through the SR 240 bridge and to the eastern city limits, including Bateman and other smaller islands
Columbia	UGA	7	The shoreline within this reach extends about 8,000 feet along the right bank of the Columbia River from the north Urban Growth Area boundary to the City limits at Horn Rapids Road. The reach includes largely U.S. Department of

Waterbody	City/ UGA	Reach Label	Reach Description
			Energy land and includes portions of Wooded Island, Susan Island, and Barb Island in the Columbia River.
Columbia	City	8	The shoreline within this reach extends about 8,000 feet along the right bank of the Columbia River from the current City limits at Horn Rapids Road to Spring Road. The reach includes shoreline areas managed as part of the McNary Dam project and private and public uplands.
Columbia	City	9	The shoreline within this reach extends along the right bank of the Columbia River from Spring Road to Howard Amon Park.
Columbia	City	10	The shoreline within this reach extends about 2 miles along the right bank of the Columbia River from the north end of Howard Amon Park to the I-182 bridge. The reach includes shoreline areas managed by the City as park and open space, as well as residential and commercial uses, including a marina.

Figures depicting these reaches and subreaches, where applicable, are provided in the map folio; characterization tables are provided in Appendix A.

4 RICHLAND OVERVIEW

4.1 Ownership and Land Cover

Ownership within the City is dominated by private lands. Public lands are dominated by City-owned parcels. Public space within the shoreline jurisdiction of the Yakima River includes W.E. Johnson Park, the Chamna Natural Preserve, the Riverview Preserve managed by the U.S. Army Corps of Engineers and Bateman Island at the river delta. On the Columbia River, public space includes Leslie Groves Park, Howard Amon Park, Columbia Point Marina Park, South Columbia Point Park, and Columbia Park West at the confluence of the Columbia and Yakima rivers. Table 3 documents the percentage of ownership types within the City limits and UGA.

Table 3
Ownership Types within City Limits and UGA

Ownership Type	Percentages
City	19.12%
County	0.61%
Private	78.25%
State	1.90%
Federal	0.12%

Land cover in Richland is dominated by developed areas and shrub/scrub habitat. Table 4 documents the percentage of land cover types within the City limits and UGA.

Table 4
Land Cover Types within City Limits and UGA

Land Cover Type	Percentages
Agriculture	17.62%
Developed	42.23%
Forested	0.06%
Grassland	0.23%
Open Water	7.80%
Shrub/Scrub	30.80%
Wetlands	1.26%

4.2 Land Use

4.2.1 Citywide Existing Land Use

Land use is characterized by reach in the tables and text below.

4.2.2 Current Citywide Land Use

The City is part of the Tri-Cities Metropolitan Area in southeast Washington state and includes 25,197 acres in the current incorporated limits and additional 5,433 acres in the UGA. The 5.8 square miles in the City and the associated UGA comprise about 5 percent of the 111 square miles designated UGA in the Benton County Comprehensive Plan.

Residential use comprises about 23 percent of the land area, industrial and business park about 20 percent, commercial/retail about 5 percent, natural open space about 8 percent, and developed open space about 7.4 percent.

Much of the Columbia River shoreline and portions of the Yakima River shoreline are managed by the U.S. Army Corps of Engineers as part of the McNary Dam project with large portions of the federal ownership leased to the City as park and open space.

The major area of private commercial development on the Columbia River shoreline is located in the Columbia Point Area between Howard Amon Park and the Interstate 182 bridge, and includes two hotels and a commercial/restaurant complex as well as a marina. The majority of this area is multi-family development.

The natural open space system includes most of the Yakima River and Columbia River shorelines, islands, greenways, and designated areas within residential developments.

Major elements on the Yakima River include the Tapteal Greenway which runs approximately 30 river miles, from Benton City to Columbia Point; W.E. Johnson Park includes about 236.0 acres located south of Van Giesen Street including mostly natural open space with about 1/2 mile of Yakima River frontage; the Chamna Natural Preserve is a 276+ acre park located on the left bank of the river between the Interstate 182 bridge and State

Route (SR) 240; the Riverview Preserve is a 268.0-acres area managed by the Corps on the right bank of the Yakima River; Bateman Island is 160 acres in the Yakima River Delta.

On the Columbia River, major components of the open space system include: Leslie Groves Park located between Snyder Street and Van Giesen Street which is 149.2 acres in size; Howard Amon Park which extends from about Gowen Drive to the Hampton Inn on Bradley Blvd.; Columbia Point Marina Park which is 14.1 acres in size and located in the southerly portion of Columbia Point Drive; South Columbia Point Park, which is a largely undeveloped area of 230 acres located at the confluence of the Yakima River and the Columbia River. Columbia Park West is 65 acres and located south of the Yakima River delta.

4.2.3 Water-dependent Uses

Water-dependent uses in the City include largely recreation marinas (Columbia Park West and Columbia Point) and boat launches on both the Columbia and Yakima rivers. Two port facilities are located in North Richland near Horn Rapids Road and consist of barge offloading piers and ramps.

4.2.4 Water-related Uses

Water-related uses, including water enjoyment uses, include much of the park and open space areas along the shorelines that provide for recreational use, including water-related beach and swimming access as well as aesthetic enjoyment of the shoreline on trail systems and passive recreation areas. Some mixed use development on Columbia Point provides opportunities for public access, but the public access component is generally on public land adjacent to the trail corridor.

4.2.5 Non-water-related uses

Non-water-related uses directly adjacent to the water are largely limited to a small area of large lot single family/rural use along the Yakima River in the vicinity of Van Giesen Street; a single family residential area along the Columbia River between Ferry Road and Sprout Street and the Washington State University (WSU) Tri-Cities campus north of Sprout Road.

4.2.6 Future Land Use

4.2.6.1 Vacant Lands

The largest area of shoreline vacant lands in Richland is the Port of Benton Technology and Business Campus located in North Richland adjacent to the Columbia River with more than 6,000 feet of river frontage.

4.2.6.2 Water-oriented Uses

The potential for water-dependent use is largely limited to recreation and moorage. The expansion of port uses related to barge traffic on the Columbia River is limited by regional demand and the apparent surplus of potential port sites in Benton and Franklin Counties (POK 2010). In addition, the City is at the end of the navigable portion of the Columbia River and does not have railroad access adjacent to the river.

There may be some potential for water-related and water enjoyment use in the Columbia Point area, however vacant or re-developable private land is limited in that area.

4.2.6.3 Non-water-Oriented Uses

The potential for non-water oriented use is greatest in the North Richland Technology & Business Campus. There are relatively few private undeveloped or re-developable parcels in the Columbia Point area. The most likely potential site in this area is the existing Shilo Rivershore Hotel. Additional single family and multi-family development is designated for portions of North Richland north of Battelle Blvd.

A summary of land use characteristics and the geographic character of existing development is shown in Tables 5 and 6.

Table 5

Shoreline and Land Uses Summary Characteristics by Reach

			Land Use									
					Commercial		Industrial		Recreation		Transportation	
Waterbody	City/ UGA	Reach Label	Single Family	Multi-Family	Water-Oriented	Non-Water-Oriented	Water-Oriented	Non-Water-Oriented	Water-Oriented	Non-Water Oriented		Vacant or Other
Yakima	UGA	1	0	0	0	0	0	0	0	0	0	48 ac
Yakima	UGA	2	0	0	0	0	0	0	0	0	0	14 ac
Yakima	UGA	3	5 ac	0	0	0	0	0	0	0	0	850 ac
Yakima	City	4	0	0	0	0	0	<1 ac	0	<1 ac	0	1,736 ac
Yakima	City	5	0	0	0	0	0	0	0	0	<1ac	192 ac
Yakima	City	6	0	0	0	4 ac	0	2 ac	6 ac	30 ac	30 ac	321 ac
Columbia	UGA	7	0	0	0	0	0	0	0	0	<1 ac	79 ac
Columbia	City	8	4 ac	0	0	0	0	0	1 ac	<1 ac	0	70 ac
Columbia	City	9	5 ac	0	0	0	0	0	2 ac	40 ac	2 ac	41 ac
Columbia	City	10	0	8 ac	0	5 ac	0	0	14 ac	29 ac	<1 ac	2 ac

Notes:

ac = acres

Table 6

Parcels Summary Characteristics by Reach

			Average Conditions by Parcel						Total by Reach	
Waterbody	City/ UGA	Reach Label	Parcel Size (acre)	Parcel Width (feet)	Parcel Depth (feet)	Shoreline Setback (feet)	Buffer Depth (feet)	Buffer Condition	Overwater Structures	Impervious %
Yakima	City									
Yakima	UGA	1		4,000	500	100	100	4	0	>10%
Yakima	UGA	2		3,000	200	100	100	4	0	>10%
Yakima	UGA	3		300-5,000	600-3,000	100-1,000	10-1,000	4	0	>10%
Yakima	City	4		450-25,300	1,600	30-4,300	0-4,300	4	3	>10%
Yakima	City	5		8,300	50-650	50-650	50-650	4	1	>10%
Yakima	City	6		100-21,000	350-2,300	20-4,500	20-4,500	3	12	10%
Columbia	UGA	7		8,000	2,600-4,100	60-800	30-100	1	0	>10%
Columbia	City	8		100-11,000	60-600	0-600	0-130	1	12	>10%
Columbia	City	9		100-14,520	300-700	0-500	0-500	2	1	>10%
Columbia	City	10		100-7,500	350-600	0-100	0-100	1	7	50%

4.3 Current SMP Environment Designation

The City applies its shoreline environment designations within its shoreline jurisdiction under its current SMP. The 1979 Shoreline Master Program indicates four Environment Designations: Natural, Conservancy, Rural, and Residential. The SMP also includes policies for each Environment Designation. The existing Environment Designations are shown in the Reach Characterization Tables in Appendix A.

4.3.1 Natural

Natural shorelines contain unique and valuable natural or cultural features, including several islands. These areas should be preserved and protected from intolerant forms of development and use. All shorelines are presently in use, primarily for city parks/natural open space and residences, as well as some industrial and commercial uses. Some Natural Environment occurs in all of the shoreline areas.

4.3.2 Conservancy

The Conservancy Environment is used for those areas that contain a unique character (natural, cultural, aesthetic, historic, recreation) that should be maintained, but limited development or use can be tolerated. These areas are important for present and future recreation uses that can maintain the natural character of the shoreline as practicable.

4.3.3 Rural

The Rural Environment is intended for those areas characterized by intensive agricultural and outdoor recreational uses and those areas having a high capability to support active agricultural practices and intensive outdoor recreational development. Designation of Rural Environment areas protects prime farming lands and rural areas from urban expansion and also provides opportunities for recreation and other compatible uses.

4.3.4 Urban

The Urban Environment is an area with few limitations for high intensity land use including residential, commercial, recreational, and industrial development. It is particularly suitable to those areas presently subjected to extremely intensive use pressure, as well as areas

planned to accommodate urban expansion. The purpose of the Urban Environment designation is to ensure that optimum utilization of shorelines is occurring within urbanized areas by managing development so that it enhances and maintains shorelines or a multiplicity of urban uses.

4.4 Geology

The geology, soils, and topography of the Richland area are primarily dictated by glacial outburst flooding that occurred near the end of the last major glacial period, approximately 18,000 to 20,000 years before present. This event is referred to as the Missoula Floods. The geologic makeup is the result of erosion of pre-Floods geologic units, deposition of sediments carried by the floodwaters, and the formation of the unique topographic features that influence present-day hydrology. Prior to the Floods, the geology of the County consisted primarily of Miocene-aged Columbia River Basalt (CRB) flows that were in some places (e.g., plateaus) capped with varying thicknesses of wind-blown fine sands and silt known as loess (Grolier and Bingham 1978). The segments of the Yakima and Columbia rivers around Richland are located in a wide valley that is 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.

4.5 Climate

The City fall within the Central Basin region of Washington, which has the lowest precipitation rates within Washington state. Annual precipitation in the Richland area averages around 7.15 inches and precipitation is commonly associated with summer thunderstorms and winter rains and snowfall. Snowfall depths rarely exceed 2 to 3 inches and occur from November to March. High temperatures in January can range from 35 to 45 degrees Fahrenheit (1.6 to 7.2 degrees Celsius [°C]) with low temperatures between 20 to 30 degrees (-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 2012).

4.6 Water Resources

4.6.1 Surface Water Resources

This section presents surface water resources as they relate to shoreline master planning for the planning area. The planning area is located in the lower Yakima River basin (Water Resource Inventory Area 37). Major surface water resources are the Yakima River and Columbia River.

4.6.1.1 Yakima River

The Yakima River is a major surface water resource for the planning area. The nearest current instantaneous USGS gage on the Yakima River is gage #12510500 (Yakima River at Kiona, Washington). The Yakima River at this gage has an average annual flow of 3,497 cubic feet per second (cfs) for its 78-year period of record (1934 to present; USGS 2012. The Yakima River drains a basin area of 5,615 square miles at this gage. This gage is also a U.S. Bureau of Reclamation (USBR) gage (gage KIOW).

Yakima River hydrology in the planning area is affected by the Yakima Project. The Yakima Project includes a reservoir system that stores natural flow in the upper Yakima River and Naches River basins for release during high demand periods. The storage and release cycle causes the Yakima River in the planning area to be regulated with flows higher than natural in the late summer and fall and lower than natural in the spring and early summer. Additionally, Yakima River flow in the planning area is affected by return flow from water use in the upper Yakima River and Naches River basins.

The Yakima Project reservoir system also captures floods in the upper Yakima River basin. This operation reduces the frequency, duration, and magnitude of floodplain inundation and decreases the regulatory floodplain and floodway size compared to natural conditions (USBR 2002). The City planning area has portions along the Yakima River with good floodplain connection causing the floodplain area to be significantly greater than the floodway area.

Water resources in the Yakima River and Yakima River basin are the subject of the Integrated Water Resource Management Plan (Integrated Plan). The Integrated Plan is a proposed approach to improve water management in the Yakima River basin. According to

the Integrated Plan, the goals are "to protect, mitigate, and enhance fish and wildlife habitat; provide increased operational flexibility to manage instream flows to meet ecological objectives; and improve the reliability of the water supply for irrigation, municipal supply, and domestic uses" (USBR and Ecology 2011). The proposed Integrated Plan is expected to provide pulse flows in the spring to the Yakima River during dry months within the planning area.

4.6.1.2 Columbia River (Lake Wallula)

The Columbia River is another major surface water resource for the planning area. The portion of the Columbia River within the planning area is part of the upstream portion of Lake Wallula. Lake Wallula was created from the impoundment of the Columbia River by McNary Dam. The active continuous USGS gage nearest to the planning area is gage #12514500 (Columbia River on Clover Island at Kennewick, Washington). The Columbia River at this gage drains 104,000 square miles. This gage is a water surface elevation gage and has records from Water Year 1988 to present. The water surface elevation at this gage ranges from 335 feet to 344 feet (NGVD 1929).

Because the planning area is within the Lake Wallula portion of the Columbia River, water levels are generally stable. Columbia River floodplain levels are also confined due to river regulation.

4.6.2 Surface Water Quality

This section presents surface water quality as it relates to shoreline master planning for the planning area.

4.6.2.1 Yakima River

The Yakima River is listed on the current 303(d)[1] list of impaired waters for several parameters including pH, dichlorodiphenyldichloroethylene (DDE), and dichlorodiphenyltrichloroethane (DDT) within the planning area.

Ecology has a long-term water quality monitoring gage located near the planning area (gage #37A090, Yakima River at Kiona, Washington). Its period of record is 1947 to 1948, 1953 to 1962, and 1967 to present. At this gage, water quality standards criteria that are typically exceeded are pH during the irrigation season and temperature during the late summer (July and August).

One of the water quality parameters (temperature) was studied in detail within the planning area during summer months of 2008 and 2009. It was noted in this study that temperatures were above the lower Yakima River water quality standard of 21 °C. There were however localized areas of cooler temperatures caused by non-point source seeps likely caused by groundwater discharge. The localized areas did not appear to be located within the planning area (Benton Conservation District 2011).

In the planning area, Yakima River water quality is affected by irrigation return flows. Irrigation return flows and operational spills from drains and tributaries contribute up to 80 percent of the flow in the lower Yakima River. These return flows can affect many water quality parameters, including increases in suspended sediment, turbidity, fecal coliform, pesticides, temperature, and nutrients. The return flows can also cause a reduction in dissolved oxygen and an increase in pH (USBR 2002). Some return flows may cause localized areas of lower temperatures (Benton Conservation District 2011).

[1] The term "303(d) list" is short for the list of impaired and threatened waters (stream/river segments, lakes) that the Clean Water Act requires all states to submit for EPA approval every two years on even-numbered years. Accessed April 29, 2013 from: http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/overview.cfm

4.6.2.2 Columbia River (Lake Wallula)

The Columbia River is on the 303(d) list of impaired waters for temperature within the planning area. Additionally, the Columbia River has a total maximum daily load (TMDL) for total dissolved gas and is a 305(b) water of concern for pH.

Total dissolved gas is measured in the Columbia River at several gages as part of the Columbia River Data Access in Real Time (DART) program. The DART gage nearest to the planning area is gage PAQW (Columbia River at Pasco, Washington). This gage has been in operation since 2000.

4.6.3 Groundwater Resources

Groundwater in the planning area is within the Columbia Plateau aquifer system, which consists of the Columbia River Basalt Group overlain by quaternary flood deposits. Groundwater in the planning area is hydraulically connected to surface water, so the amount of groundwater pumping affects surface water stream flow, and groundwater resources are recharged by surface water interaction. The estimated mean annual groundwater recharge in the planning area is up 2 inches (USGS 2011).

Groundwater interaction with surface water also causes seepage losses or gains within rivers. The Yakima River within the planning area has an estimated loss. This can have an effect on surface water quantity and quality.

4.6.4 Floodplain and Floodway

Damage from flooding along the Columbia River occurred in 1948 and flooding from the Yakima River has affected the City more recently. Flood stage for the Yakima River is at 13.0 feet and is measured at the Kiona gage near the SR 223 bridge in Benton City. Benton County has determined that moderate flooding occurs when flows at this gage measure above 14.5 feet and major flooding occurs above 16.0 feet (Benton County Emergency Services 2012). Flood stage for the Columbia River is 32.0 feet and is measured at the gauge below the Priest Rapids dam. During maintenance of the Priest Rapids Dam spillway in July of 2012, high outflows from the dam raised the river near flood stage in the Tri-Cities (KNDU 2012). The floodway boundary is shown in the map folio on Map 7.

4.6.5 Channel Migration Zone

In the vicinity of the City, the Yakima River is a meandering single- thread channel that widens and becomes braided as it approaches the Columbia River. Historical photos indicate some lateral movement and potential bank flooding. Much of this area is mapped in the Federal Emergency Management Agency (FEMA) High Risk Flood Area supports wetlands, especially at the confluence of the Columbia River. The channel migration zone is depicted on applicable figures in map folio, and also discussed in the Yakima River tables in Appendix A.

The Columbia River is a stable, confined, single-thread channel with low sinuosity and depositional (un-vegetated) mid channel islands and bars. The flooding risk is low in the Columbia River.

4.7 Geologic Hazards

Geologically hazardous areas are defined as those lands susceptible to erosion, landslides, seismic or mine hazard events. Identified hazardous areas are shown on Map 7 in the map folio. The boundary of this area is based on a 200-foot buffer from either the OHWM of the Yakima River or from the floodway boundary as determined by FEMA flood insurance maps.

4.8 Cultural Resources

4.8.1 Historical Background

The City is located at the confluence of the Yakima and Columbia rivers. It is in the Southern Plateau, part of the larger Columbia Plateau culture area. The Southern Plateau stretches from southern Okanogan County in the north to the northern border of the Great Basin to the south. The prehistory and history of the Southern Plateau is briefly summarized here. Known archaeological and historic sites are discussed, as well as potential for archaeological and historic sites.

At the end of the Pleistocene era, hunters of large mammals fanned out across North America. This period is known in the Columbia Plateau as Paleoindian (Ames and Maschner 1999:64-66), and in the southern Plateau as Period Ia (Ames et al. 1998). In the Columbia

Plateau as a whole, Chatters and Pokotylo (1998) included these early mobile foragers in the Early Period from about 11,000 to 8,000 years ago. The earliest Paleoindian sites recorded in the Columbia Plateau are attributed to the Clovis culture, including the Ritchey-Roberts Clovis cache in East Wenatchee, which dates to 12,250 BP (Mehringer and Foit 1990).

After the brief but widespread Clovis occupation, a "broad-spectrum" hunter-gatherer culture developed in the Columbia Plateau region and persisted until the middle Holocene, around 5,300 years ago. This culture spans the latter part of the Early Period and the Early Middle Period in the Columbia Plateau sequence (Chatters and Pokotylo 1998), and Period Ib in the Southern Plateau sequence (Ames et al. 1998).

A shift towards more permanent settlement began around 6,000 years ago. Known as the Late Middle Period in the Columbia Plateau, and Period II in the Southern Plateau, this period lasted until the beginning of the early Holocene around 3,000 years ago (Chatters and Pokotylo 1998; Ames et al. 1998). In general, Period II tool assemblages are characterized by the addition of groundstone and bone/antler tools to the existing flaked stone technology.

Late Holocene cultures in the Columbia Plateau region exhibit "a "shift in adaptations…to storage-dependent collector strategies" (Chatters and Pokotylo 1998:76), which are characterized by intensive salmon fishing and associated storage features, social inequality, large permanent winter villages, and diverse tool assemblages. Labeled the Late Period, this shift begins around 4,000 years ago and persists until historic contact (Chatters and Pokotylo 1998). In the southern Columbia Plateau, the contemporaneous Period III also includes evidence of intensive camas processing and fiber and wood artifacts preserved in the relatively dry climate (Ames et al. 1998). The late Holocene archaeological cultures correlate with historic ethnographic descriptions.

The Yakima-Columbia confluence has a rich archaeological record, with sites in the area attributed to all of the Southern Plateau cultural phases. The area has been "occupied more or less continuously for the last 10,000 years" (Western Heritage 1983:4). There are 32 recorded archaeological sites within a mile of the confluence. National Register-listed properties include the Columbia Point site, the Bateman Island Site, and the Tri-Cities Archaeological District.

The City is in the traditional territory of the Yakama Nation, a Sahaptin-speaking Plateau people (Walker 1998). Wanapum and Walla Walla people also used the area (Kershner 2008). Traditional Plateau cultures were based on a seasonal round that took advantage of fish runs, game, and root resources, as well as trade, kinship ties, and intermarriage among groups (Walker 1998). Prior to historic resettlement, permanent winter villages anchored the seasonal round (Boyd and Hajda 1987). Villages consisted of large mat lodges, each housing an extended family, and occasionally also smaller conical structures (Stern 1998; Schuster 1998). Villages were the basic political unit (Schuster 1998).

Fishing activities revolved around an early salmon run in March, and a second, larger run in June (Schuster 1998). Fishing technology included the portable (toggling harpoons, leisters, hook-and-line, and nets) and the non-portable (traps, weirs, and platforms at permanent fishing stations; Schuster 1998). Gathering activities took place throughout the year. Fish, roots, and berries were processed, dried, and stored. Although salmon were a key staple, plant foods also made up a significant portion of the diet (Hunn 1981). Religious life involved adherence to both the Guardian-Spirit complex, which included the sweatlodge and curative "sings"; and the Washat religion, which was based on ceremonies held in the longhouse and included first food feasts in the spring celebrating the return of the salmon and newly sprouting plants (Schuster 1998).

By the time of the first sustained contact between the tribes of the Richland area and Euro-American settlers in the mid1800s, tribal life had already been significantly impacted. Introduced diseases decimated the population (Vibert 1997:50) while the introduction of the horse altered social and economic activities.

The earliest recorded Euro-American exploration of the Columbia River was in 1792 (Hayes 1999), but settlement of the region was slow until the 1840s when Americans were attempting to wrest control from the British (Mackie 1997). The Oregon Treaty of 1846 awarded the Oregon Territory to the United States (Wells 2000). In 1853, Washington became a territory separate from Oregon, and by the next year, governors of both territories began pursuing treaties that relegated tribes to reservations (Wilma 2003). Fourteen tribes

and bands signed the Treaty of 1855 that established the Yakama Indian Reservation (YNM 2011).

The Lewis and Clark expedition recorded the first description of the confluence area in 1805, and David Thompson passed through in 1811 (Nisbet 2005:109). The area was rarely visited, and several early attempts at settlement (e.g., a mission, a group of cattle ranchers) failed (Kershner 2008). However, by the 1890s, settlers had established an agricultural economy and built irrigation systems (Kershner 2008).

Richland remained a small, primarily agricultural community until 1943, when the plutonium production site was established just to the north at Hanford (Sanger 1995:4). The shift in the community was profound, and "the old Richland became, virtually, extinct [while]…the new Richland was being built at an astonishing pace" (Kershner 2008:1). Everything in the city was owned by the U.S. government until 1960. The Hanford plant was deactivated piecemeal in the 1990s, though many Richland residents are still employed in maintenance and cleanup at the site (Gerber 1992:223). The modern economy is focused on technology, medicine, and education (Kershner 2008).

4.8.2 Recorded Cultural and Historical Resources

The Department of Archaeology and Historic Preservation (DAHP) maintains an electronic database of archaeological sites, historic structures, and cemeteries. Resources, except for cemetaries, are listed by reach in Table 7.

Table 7

Recorded Cultural and Historical Resources within 1,000 Feet of the Shoreline in the Richland Area, by Reach

Reach	Archaeological Site or Isolate	National Register-Listed Property	Structures Older than 50 Years, Significance Not Evaluated
1	None recorded (just downstream of the Horn Rapids Traditional Cultural Property)	None recorded	None recorded
2	None recorded	None recorded	1 structure
3a	2 precontact sites	None recorded	10 structures
3b	None recorded	None recorded	1 structure
3c	2 precontact sites	None recorded	2 structures
4a	1 precontact site 1 multi-component site	None recorded	None recorded
4b	1 precontact site	Precontact site is Register-listed	None recorded
4c	1 precontact sites 1 historic era site	Precontact site is Register-listed Tri-Cities Archaeological District	None recorded
5	1 historic era site	None recorded	1 structure
6a	1 precontact site	None recorded	7 structures
6b	1 historic era site	None recorded	1 structure
6c	11 precontact sites 5 historic era sites 1 multi-component site	1 precontact site is NRHP-listed Tri-Cities Archaeological District	> 30 structures
7a	6 precontact sites 2 historic era sites 1 multi-component site	Hanford South Archaeological District	1 structure
7b	4 precontact sites 2 historic era sites	Hanford South Archaeological District	3 structures
7c	7 precontact sites 4 historic era sites	Hanford South Archaeological District	None recorded
7d	2 precontact sites	Hanford South Archaeological District	None recorded
7e	None recorded	Hanford South Archaeological District	None recorded
7f	1 precontact sites	Hanford South Archaeological District	None recorded
8a	2 historic era sites	Hanford South Archaeological District	None recorded
8b	1 precontact site	Hanford South Archaeological District	None recorded
8c	1 precontact site 1 historic era site	Hanford South Archaeological District	None recorded
8d	1 precontact sites	Hanford South Archaeological District	None recorded

Reach	Archaeological Site or Isolate	National Register-Listed Property	Structures Older than 50 Years, Significance Not Evaluated
8e	1 precontact sites	Hanford South Archaeological District	> 30 structures
8f	5 precontact sites	Hanford South Archaeological District	None recorded
9a	1 precontact site	Hanford South Archaeological District	> 30 structures
9b	None recorded	Hanford South Archaeological District	> 30 structures
9c	1 precontact site	Hanford South Archaeological District Tri-Cities Archaeological District Gold Coast Historic District	> 30 structures
9d	1 precontact site	Tri-Cities Archaeological District	> 30 structures
9e	2 precontact sites	Hanford South Archaeological District	None recorded
9f	1 precontact site	Hanford South Archaeological District	None recorded
10b	1 precontact site	Tri-Cities Archaeological District	None recorded
10c	2 precontact sites	1 precontact site is Register-listed Tri-Cities Archaeological District	None recorded

4.8.3 Potential for Archaeological and Historic Resources

The Richland area has a dense concentration of archaeological and historic resources, many with exceptional significance and cultural value. A number of archaeological and historical site types could be expected, including:

- Lithic scatters, quarries, and caches
- Precontact habitation sites (camps, villages, cave sites)
- Burial sites and cemeteries
- Resource procurement sites (fish traps, camas ovens)
- Pictographs and petroglyphs
- Historic habitation sites (homesteads, farms, cabins)
- Historic agricultural infrastructure
- Historic and precontact transportation corridors (trails, routes, railroad grades, road grades)
- Historic public works infrastructure (dams, transmission corridors)

Some sites may be on or near the surface, and others may be deeply buried, depending on the localized geomorphology.

4.8.4 Cultural Resources and Shoreline Development

State and local cultural resources laws apply to shoreline development. State laws include RCW 27.53 (Archaeological Sites and Records), which prohibits the unpermitted removal of archaeological materials and establishes a permitting process, and RCW 27.44 (Indian Graves and Records) which describes how human remains must be treated.

Given the importance of shoreline locations throughout the human history of the area, the potential for cultural resources should be considered high for any shoreline development permit unless demonstrated otherwise. Shoreline areas near the confluence should be considered especially sensitive. To comply with state and local law, applicants should be prepared to follow the provisions of RCW 27.53 and 27.44 if cultural resources are identified or encountered during the planning or construction process.

5 SHORELINE INVENTORY, ANALYSIS, AND CHARACTERIZATION

5.1 Ecosystem-wide Processes and Conditions in Richland

An ecosystem is a natural system consisting of biological (plants, animals, and microorganisms), physical, and chemical factors that together make up the environment. Ecosystem-wide processes are the naturally occurring physical and chemical cycles that shape the landscape and determine habitat types and associated ecological functions (WAC 173-26-020 (14)). Processes occur at multiple scales and are influenced by hydrology, geology, topography, soils, land cover, and land use characteristics. These processes determine the types and quality of shoreline functions or services that contribute to the maintenance of aquatic and terrestrial environments that make up an ecosystem (WAC 173-26-020 (13)).

The following sections discuss ecosystem processes and habitat structures that these processes form and maintain. This section also describes conditions, including alterations to the ecosystem process, for the Yakima and Columbia Rivers and shoreline along the City and the UGA. Alterations to ecosystem processes can affect habitat structure and the availability of habitat services, especially over long periods of time. Ecosystem processes and conditions in Richland are presented through the categories of hydrology, sediment, water quality, and habitat.

5.1.1 Hydrology

5.1.1.1 Ecosystem Process

The process of water delivery, movement, and storage within an ecosystem is largely affected by landform, geology, soil characteristics, and climate including precipitation. Rain and snowmelt provide the hydrologic inputs into a watershed. This cycle affects other physical, chemical, and biological functions of the river system. The speed with which water flows through the watershed also affects whether nutrients, sediments, or other materials are deposited or retained in the water and transported through the watershed.

Water is delivered to streams primarily from surface water runoff from above and, in some cases, from groundwater. The horizontal structure of river and stream channels includes the wetted channel zone where water is present during low-flow events, an active channel that

is seasonally inundated, and the riparian zone located above seasonal high water elevations. The vertical structure of these systems includes a benthic zone along the surface of the bottom substrate and the hyporheic zone, which provides a transition between the surface and the groundwater, or phreatic zone. Hyporheic and benthic zones cycle out excessive nutrients and contaminants, store and transport both water and sediment, maintain base flows, and can support vegetation and microorganism communities. The interaction of hydrologic and geomorphic processes contributes to habitat structures useful to aquatic species including shallow water and off-channel refugia, gravel bars, pools, riffles, and the transport of organic material, including large woody debris.

5.1.1.2 Conditions in Richland

The City has two major surface water resources: the Yakima and Columbia Rivers. See Table 1 in Section 3.3 for a description of the reaches identified for these water bodies. There are a number of small inlets along the Yakima River, including a shallow groundwater return within Reach 2, and the City's wastewater treatment plant discharge within Reach 4. Along the Columbia River there is a surface water outlet within Reach 9 and the Yakima River inlet at Reach 10. The hydrologic process occurring within the City on the Yakima River and associated drainage area is affected by Yakima Project operations. Along the Columbia River, McNary Dam operations affect the hydrologic processes. Major alterations from this system include the artificial storage and release cycle that produces higher than natural flows in the late summer and fall and lower than natural flows in the spring and early summer. Riparian vegetation and aquatic species adapt to seasonal inundation fluxes and these changes in the natural flows may adversely affect these systems and species. Flood storage occurring in the upper Yakima River and Columbia Basins outside of the City reduces the frequency, duration, and magnitude of floodplain inundation, while decreasing the floodplain size. This change in the hydraulic regime also affects the cycling of sediment, nutrients, and organic materials within the river, as discussed below.

5.1.2 Sediment

5.1.2.1 Ecosystem Process

Sediment delivery through a watershed is based on interactions between, gravity, wind, and water across the various geologic features, soils, and land covers. Soil erosion, landslides, and

mass wasting provide the majority of sediment inputs within the Yakima River. Landslides and mass wasting are a function of slope, soil, and water interacting to create instability. Soil erosion is a function of slope, soil cohesiveness, and cover interacting with water or wind forces. Sediments transported by water or wind are deposited wherever and whenever the water or wind transporting them slows. This is often within topographic depressions where sediment is deposited into lakes and stream pools, wetlands, and floodplains. The sediment erosion, transport, and deposition cycle is a major aspect of river and stream channel formation and channel migration.

The maintenance of shallow water habitat along the Yakima and Columbia Rivers is driven by the recruitment and transport of appropriately-sized sediments. Shallow water areas with small, clean natural substrates (e.g., sand and pebbles) are important for benthic production and as refuge for juvenile fish. Coarser substrates tend to provide habitat for predatory fish. Fine sediment (silt and clay) can decrease water quality by creating turbidity that adversely affects some aquatic species.

Shoreline armoring typically exists in developed areas or in areas where significant infrastructure exists, such as overwater bridge crossings or boat ramps. These armoring structures tend to disconnect natural sediment sources from erosion by forming a physical barrier between the shore and the water itself. The wave energy reflected off of these types of armoring leads to the washing away of smaller substrate sizes that support small benthic animals and also prevents riparian vegetation establishment with associated habitat functions.

5.1.2.2 Conditions in Richland

Channelization of streams can include hardening of banks with levees or revetments, straightening of channels, deepening of channels, removal of roughness that impedes flow, and other efforts to minimize the migration of the channel while maximizing flow capacity. Confinement, channelization, and channel incision of the Yakima River has occurred in certain reaches upstream of Richland. Downstream effects of these alterations include greater deposition of transported sediments, increased flood stage, and loss of channel capacity. Localized impacts of hardened banks in Richland include higher water velocities,

increased sediment transport, potential head cutting, and bank instability potentials near the areas of hardening.

Natural channel migration and sediment deposition occurs in reaches of the river that are not confined through shoreline development or that contain hardened banks. Shoreline hardening along the Yakima River includes bridge abutments within reaches 3 and 4 and armoring to protect park and trail infrastructure in Reach 6. Along the Columbia River, hardening includes a bulkhead and riprap armoring around the water intake facility and barge slip within Reach 8 as well as docks within this reach, a water intake structure, docks and boat ramps within Reach 9, and marina docks, boat ramps, a riprap breakwater structure and significant riprap armoring within Reach 10. Near these abutments and hardened shorelines, channel migration and beneficial sediment inputs are limited, though areas adjacent to this hardening may have increased erosion because of localized higher water velocities and wave reflectance.

Fine sediment inputs to the Yakima and Columbia rivers are accelerated through agricultural tillage and livestock impacts to soil structure within the uplands. Reaches 1, 2, and 3 contain upland agricultural development, though Reach 2 fields occur on the West Richland side of the Yakima River. All of these reaches have a fairly limited riparian buffer near the fields, which limits the sediment and contaminant capturing function that can protect against runoff and turbidity in the river.

Sediment transport is affected by diking of stream segments within the basin. Dikes reduce spring flooding and associated sediment deposition within the surrounding floodplain. Dike grading occurs within reaches 8 through 10 along the Columbia River to protect residential and commercial properties as well as infrastructure. The dikes are topped with multi-use trails throughout much of the shoreline, allowing for public recreation and enjoyment of the waterfront.

5.1.3 Water Quality

5.1.3.1 Ecosystem Process

The combined processes that deliver, transport, and store water and sediment in the ecosystem have a substantial impact on water quality. Impacts to water quality occur through land cover changes and development, chemical use in agriculture and recreation, pathogens from waste, temperature, and natural processes such as plant respiration.

Human-induced changes to water quality (e.g., industrial effluents, sewer overflows, and runoff from upland areas) can alter river and lake water temperatures, turbidity, and oxygen content, as well as nutrient, toxin, and pathogen concentrations (Karr 1995; Welch and Lindell 2000). In general, these changes can affect the presence, abundance, and vitality of all aquatic organisms. Water delivery and water quality is affected by soil loss, soil compaction, and road and building construction typically associated with development and urbanization. These activities increase the amount of impervious surface (e.g., parking lots and roads), reduce the percolation of precipitation into the ground, and concentrate pollutants into stormwater discharge areas. Reduced water infiltration increases the amount and rate of surface water runoff, causing high stream discharge or high direct delivery of water to the stream and lake shorelines (Dunne and Leopold 1978; Arnold and Gibbons 1996; Poff et al. 1997).

Fertilizers, pesticides, and automobile- and boat-generated pollutants are linked to runoff-borne pollution that enters streams and lakes. These toxins can settle in river pools, contaminating the sediments of the benthic zone. This leads to toxins either directly affecting benthic species through illness and mortality, or indirectly affecting aquatic and terrestrial species through bioaccumulation from animals lower on the food chain.

Many pathogenic protozoa, bacteria, and viruses can be found in the environment. These come from fecal material of wildlife and domesticated animals deposited within upland areas that drain into aquatic ecosystems or deposited directly into them (Sherer et al. 1992; Stanley et al. 2005). Development near the Yakima and Columbia rivers increases the potential for pathogens to be added to the system because of increased impervious surface runoff, as described above.

Solar energy input can be another important factor that impacts water quality, especially in the summer when high temperatures coincide with high nutrient loads from agricultural runoff and lower river flows. This can result in high water temperatures and very low levels of dissolved oxygen, both of which can alter the ecology of rivers and streams. Water temperature, a physical characteristic, affects the chemical process of breaking down organic material into nutrients, as well as the biological processes of phytoplankton and zooplankton reproduction and the metabolism of fish species.

Water temperatures, plant respiration, and biological decomposition are also inversely related to dissolved oxygen levels, which play a critical role in supporting aquatic organisms such as salmonids. Similarly, alkalinity/pH and nutrient concentrations influence biological processes, particularly phytoplankton production.

5.1.3.2 Conditions in Richland

Water quality listings for the Yakima River include those for pH, DDE, and DDT. Causes of these listings are most likely due to surrounding agricultural uses and return flows from irrigation canals upstream from Richland. The Columbia River is on the 303(d) list of impaired waters for temperature within the planning area. Additionally, the Columbia River has a TMDL for total dissolved gas and is a 305(b) water of concern for pH. Features within the City that may contribute to water quality concerns include impervious development over and near the river, recreational boating and herbicide and pesticide use in residential landscaping.

5.1.4 Habitat

5.1.4.1 Habitat Structures

Habitat is the natural environment in which particular species or populations have adapted to live. Habitat provides the physical conditions and biological functions needed to support the species as part of a larger ecosystem. The lifecycles of aquatic, avian, and terrestrial species are often interdependent, meaning that the habitat requirements of a single species include other species on which they depend. The habitat requirements vary for different species and can vary for different life stages of a species.

Habitat is often described in terms of the functions of reproduction, forage, and shelter (Morrison 1992).

- The reproduction needs of species vary greatly. All species have specific needs for areas to find a mate, reproduce, and successfully rear offspring (often referred to as breeding sites, birthing areas, and nest sites). Some species have very specific needs; for example, amphibians (frogs, toads, and salamanders) require water or moist areas for laying eggs and for larval development.
- Forage includes water and food sources. Water is a universal need of all species, while forage needs vary greatly by species. An important consideration is whether a species is prey or a predator. Predators obviously require that the habitat needs for prey species are met.
- Shelter includes areas for safe resting, refuge or cover from predators, and shelter from environmental hazards (e.g., daytime or nighttime temperatures, extreme weather events, seasonal climate fluctuations, and unpredictable disturbances such as drought, fire, or flooding).

5.1.4.1.1 Aquatic Habitat

Some of the ecosystem features that are generally applicable to Yakima and Columbia River fish habitat include water temperature; water depth; instream cover, including larger rocks and wood; substrate size; instream and riparian vegetation; floodplain health; water quality; and migration access.

Freshwater fish in the Yakima River include cold water fish (including trout and salmon) that have an upper lethal limit of approximately 25 °C, introduced species such as brown trout that can tolerate slightly warmer waters (upper limit of approximately 28 °C) , and warm water fish (largemouth bass) that can tolerate temperatures as high as 36 °C (Morrow and Fischenich 2000). Freshwater fish in the Columbia also include warm and cold water species.

Water depth requirements vary by species and life stage; in general, shallow water depths are needed for migration and spawning for salmonid species. Substrate requirements can vary by species, but many fish cannot reproduce in substrate smaller than gravel.

Instream cover increases the structural complexity of a system through wood and larger rocks that improve the habitat quality for most fish. Instream vegetation, similar to instream cover, can improve habitat as long as the amount of aquatic vegetation does not create a low dissolved oxygen issue; in general, native aquatic vegetation provides quality vegetated aquatic habitat while introduced species such as Eurasian watermilfoil (*Myriophyllum spicatum*) does not.

Riparian vegetation stabilizes banks, reduces summer temperatures, and provides nutrients through leaf debris and insect fall, and provides instream cover through tree fall where trees exist along Yakima and Columbia River shorelines. Floodplain habitat is required for many fish species during multiple life stages. Extensive and unaltered floodplains that are accessible to fish species are ideal.

Water quality constraints to fish survival include low dissolved oxygen conditions (less than 3 parts per million [ppm] in warm water streams, or less than 5 ppm in cold water streams), very low alkalinity, or high turbidity conditions (Morrow and Fischenich 2000).

5.1.4.1.2 Terrestrial Habitat

Shrub-steppe upland habitat is the largest native land cover type in Benton County and is also prevalent within the City. In some areas, shrub-steppe communities abut or nearly abut the shoreline. The largest shrub-steppe plant association type in the Yakima Basin is the big sagebrush-bunch wheatgrass association. The habitat structure of this association includes an overstory of 2-meter-tall big sagebrush, an understory of bluebunch wheatgrass and Sandberg's blue grass, and groundcover dominated by algae, lichens, and moss providing a microbiotic crust (Link et al. 2006).

Riparian areas are prevalent within the City, and this habitat has greater structural diversity and productivity in terms of organic material than adjacent upland areas. Habitat characteristics of healthy riparian areas include a connected corridor for fish and wildlife travel, vegetation types adapted to wetter soils, occasional flooding, and natural disturbance regimes. Riparian areas also offer important functions for species that inhabit the shrub-steppe, as well as species more limited in range to the riparian zone. For shrub-steppe

species, they provide a critical water source and often provide a more productive environment for forage, escape, thermal cover, and nesting sites. For many species, they provide critical winter habitat. Riparian areas typically support larger flocks and a greater density of upland birds than shrub-steppe habitat because of the greater production of biomass and the more complex mosaic of vegetation (Stinson and Schroeder 2012).

Movement corridors are crucial to wildlife and may be seasonal, depending on the species. The primary function of a corridor is to connect disjunctive areas of habitat by allowing migration and dispersal between the areas. Movement corridors provide the following functions essential to healthy wildlife populations:

- Provides connectivity and, thereby, genetic variation and biodiversity between differing populations and habitats, connects isolated habitats, and may allow recolonization of extirpated species
- Provides varying habitats for migration patterns (e.g., foraging, mating and nesting, rearing, shelter, and wintering) and allows populations to move in response to habitat changes such as fires
- Can provide habitat for "corridor dwellers"—species that live within corridors for extended periods (Beier and Loe 1992)

Irrigated agriculture provides for greater productivity in areas converted from shrub-steppe vegetation. Irrigated pasture, for example, produces much higher biomass than native shrub-steppe in arid areas and, therefore, greater potential forage. Such agricultural areas may support a greater number of wildlife, while at the same time displacing native species because their specific lifecycle needs are not met. Agriculture also may change the predator and prey community that affects native species. Agricultural landscapes typically support much higher rodent populations. This larger population in turn supports higher populations of predators, such as raptors, that also support native species. This artificially higher population of predators may substantially change the balance between native species and introduced species more adapted to human alternation (Dunn 1978; Moulton 2006).

The removal of native riparian vegetation, the introduction and proliferation of invasive plant species, and the filling or degradation of wetlands along shorelines impacts the organic inputs that fuel production of the lower levels of the food chain and, therefore, can have

impacts throughout the entire food web. Organic matter produced by these habitats supports terrestrial and aquatic insects and other organisms that are then eaten themselves by birds, juvenile salmonids, and other fish species. An example of invasive plants is the aquatic plant Eurasian water milfoil, which can cover lake bottoms and out-compete the native aquatic species (altering the plant community), deplete dissolved oxygen, and lead to fish mortality (Frodge et al. 1995).

Habitat fragmentation, through the building of roads, utility corridors, agricultural and urban development, and irrigation channels can affect, in varying degrees, aquatic ecosystems and habitat types. Dam development upstream of the City has altered waterbodies and wood recruitment and transport within the Yakima River basin. Urban and agricultural development has resulted in loss of shrub-steppe habitat, habitat degradation, and fragmentation.

Plants and animals are adapted to natural light intensities and timing of lighted periods. Human-induced alterations to light transmission can interfere with plant production and aquatic animal behavior. Light energy affects water temperature, animal behavior (such as the relationship between predators and prey), and plant photosynthesis and growth (Tilzer et al. 1975). Natural light is altered when riparian vegetation is removed or when structures such as docks are built that create shade and prevent natural light from reaching the water. Reductions in this natural light preclude plant colonization and growth beneath these structures and can cause changes in animal behavior. For example, shade cast by overwater structures may disrupt juvenile salmon migration in the Yakima River by creating visual barriers to their movement (Carrasquero 2001). Natural light can also be reduced by the presence of algal blooms caused by excess nutrient additions that can collect in slack water areas.

Artificial light refers to the light that humans create at night, such as lights used for roads, parking lots, industrial complexes (including dams), houses, docks, piers, and sports fields. This light can interfere with aquatic and terrestrial animals' routines and change predator-prey relationships.

5.1.4.2 Conditions in Richland

5.1.4.2.1 Aquatic Habitat

The aquatic areas of the Yakima River throughout Richland support concentrations of wintering migratory waterfowl, primarily as a resting and feeding area for dabbling ducks, primarily mallard, Canada goose, canvasback, ring-necked duck, and wood duck. Some nesting likely occurs in areas with wider riparian buffers. The Columbia River also provides a breeding area for long billed curlew and a variety of gulls, as well as a resting area with limited nesting for great blue heron and egret.

Several fish species populate the Yakima and Columbia rivers within Richland. Salmonid fish include steelhead (*Oncorhynchus mykiss*) and spring and fall Chinook salmon (*Oncorhynchus tshawytscha*). Coho salmon (*Oncorhynchus kisutch*) were historically present here, and a coho reintroduction program is currently underway in the Yakima River Basin. Bull trout (*Salvenlinus confluentus*) were historically present and abundant in upper tributaries of the Yakima River basin and may now occur in this portion of the river in low numbers. Pacific lamprey (*Lampetra tridentate*) are present but have experienced population decline in recent years.

Resident fish include small (*Micropterus dolomieu)* and largemouth bass (*Micropterus salmoides*), northern pikeminnow (*Ptychocheilus oregonensis*), sculpin (*Cottoidea sp.*), mountain whitefish (*Prosopium williamsoni*), white sturgeon (*Acipenser transmontanus*), catfish (*Ictalurus punctatus*), sucker (*Catostaomidae sp.*), walleye (*Sander vitreus*), chiselmouth (*Acrocheilus alutaceus*), dace (*Leuciscus leuciscus*), common carp (*Cyprinus carpio*), redside shiner (*Richardsonius balteatus*), peamouth (*Mylocheilus caurinus*), and various minnow species. Shellfish include the Columbia River limpet, spire snail and California floater. Invasive species found in the Yakima and Columbia rivers include bluegill, bass, crappie, shad, carp, channel catfish, perch, and walleye.

Limitations to aquatic habitat in Richland are the elevated water temperatures and low flow common to the lower Yakima River. Fish passage is impeded regionally by the presence of several dams, though no dams are present in the City.

The following aquatic restoration opportunities are common to the lower Yakima River in this area:

- Improve migration conditions in the lower Yakima River by changing hydrograph through artificial storage or Columbia River water transfer
- Reconnect floodplain/side channels and oxbows near this reach, and investigate leasing/purchasing floodplain areas
- Reduce influence of predatory fishes such as smallmouth bass and northern pikeminnow
- Increase spawning habitat for salmon by reducing water stargrass, an invasive plant that leads to fine sedimentation
- Retain and recruit large woody debris or engineered logjams into the lower Yakima River to restore and enhance fish habitat, taking into consideration the risk of possible predation issues on juvenile salmonids
- Restore riparian buffers where possible
- Update irrigation intakes, as applicable, for protection of salmon from uptake and impingement

5.1.4.2.2 Terrestrial Habitat

Richland is dominated by developed land cover (42 percent of total area) and shrub-steppe vegetation (31 percent of total area). Agriculture areas make up approximately 18 percent of the total land cover and croplands are largely located in former shrub-steppe, riparian, and floodplain habitat. The shrub-steppe habitat provides many ecosystem services including soil stabilization, wildfire moderation, and overall biodiversity. The displacement of shrub-steppe plant species by the invasive cheat-grass (*Bromus tectorum*), Russian thistle (*Salsola tragus*), and other invasive species, in particular, increase fire intensity and frequency, which in addition to the hazards this creates for humans and wildlife also impacts the dominant shrub-steppe plant species big sagebrush (*Artemisia tridentata*), an important species for rare birds such as the sage grouse (Link et al. 2006).

While undisturbed shrub-steppe habitat is very rare, moderately disturbed shrub-steppe communities are fairly common. Such areas have been affected to various degrees by grazing, exotic plant infestations, and other disturbances. About 26 percent of the relatively undisturbed shrub-steppe habitat is dominated by native grasses and sagebrush, with an

intact cryptogam crust (a thin layer of moss and lichen that indicates an undisturbed community), and contains mostly native shrubs (e.g., big sagebrush and bitterbrush) with a predominantly native grass understory. This habitat type, while damaged by grazing, off-road vehicle use, and other disturbances, still provides cover, food, and nesting habitat for many species of wildlife. These moderately disturbed shrub-steppe areas are particularly important during winter months when nearby and adjacent cultivated fields provide no vegetative cover for wildlife (YSFWPB 2004). Recommendations for preserving shrub-steppe habitat includes limiting development footprints including agricultural land cover changes, limiting road and utility corridors to avoid fragmenting habitat, restricting vegetation clearing, keeping domestic pets and livestock out of sensitive species habitat, limiting fencing to avoid barriers to native wildlife, and limiting irrigation canals through shrub-steppe habitat (Azerrad et al. 2011).

An abundant and diverse community of wildlife inhabits and utilizes shrub-steppe communities in the area. These include a variety of reptiles such as western rattlesnake (*Crotalus viridis*), Great Basin spadefoot toad, and northern sagebrush lizard; raptors such as golden eagle(*Aquila chrysaetos*), ferruginous hawk (*Buteo regalis*), and short-eared owl (*Asio flammeus*); a variety of other birds such as long-billed curlew (*Numenius americanus*), loggerhead shrike (*Lanius ludovicianus*), sage sparrow (*Artemisiospiza belli*), Brewer's sparrow (*Spizella breweri*), sage thrasher (*Oreoscoptes montanus*), greater sage-grouse (*Centrocercus urophasianus*), western kingbird (*Tyrannus verticalis*), western meadowlark (*Sturnella neglecta*), mourning dove (*Zenaida macroura*); small mammals such as Townsend ground squirrel (*Urocitellus townsendii*), black-tailed jackrabbit (*Lepus californicus*), white-tailed jackrabbit (*Lepus townsendii*), Merriam's shrew (*Sorex merriami*); and large mammals such as coyote (*Canis latrans*), badger (*Taxidea taxus*), bighorn sheep (*Ovis canadensis*), mule deer (*Odocoileus hemionus*), and elk (*Cervus canadensis*). Historically, gray wolves (*Canis lupus*) were a top-level predator in the area, preying primarily on deer and elk. The breeding population of wolves was decimated by the 1930s as a result of the expansion of ranching and farming in the state. In the absence of natural predators, large mammals such as deer and elk have increased substantially, often in excess of the land's carrying capacity (WDFW 2011).

Riparian and floodplain areas as well as wetlands are primarily associated with the mainstem and tributaries of the Yakima and Columbia rivers although they are also present in seep

areas in shrub-steppe areas. Black cottonwood is the dominant plant species in lowland riparian areas and plays a key role in the integrity of riparian systems (USBR 2008). Other species include a variety of willow species, red-osier dogwood, aspen, water birch, serviceberry, chokecherry, rose, hawthorn, and snowberry, as well as invasive species such as Russian olive.

Reptile and amphibian species found in these habitats include western painted turtle (*Chrysemys picta*), spotted frog (*Rana pretiosa*), gopher snakes (*Pituophis melanoleuces*), garter snake (*Thamnophis sirtalis*), and others. Small mammals include beaver (*Castor canadensis*), river otter (*Lutra canadensis*), muskrat (*Ondatra zibethicus*), mink (*Mustela vison*), porcupines (*Erethizon dorsatum*), raccoons (*Procyon lotor*), skunks (*Mephitis mephitis*), silver-haired bats, and pallid bats (*Antrozous pallidus*). River otters are occasionally observed in the Hanford Reach. Common avian species include Wilson's phalarope (*Phalaropus tricolor*), belted kingfisher (*Megaceryle alcyon*), peregrine falcon (*Falco peregrinus)*, and hairy woodpecker (*Picoides villosus)*. Species of waterfowl that utilize the wetland and riparian habitats within the affected area include mallard (*Anas platyrhynchos*), American wigeon (*A. Americana*), and others (USFWS 2008, 2012).

Both the Lower Yakima Basin and the Pasco Basin are located in the Pacific Flyway and serve as a resting area for neotropical migrant birds, migratory waterfowl, and shorebirds. During the fall and winter months, ducks (mallard (*Anas platyrhynchos*), common merganser (*Mergus merganser*), gadwall (*Anas strepera*), blue-winged teal (*Anas discors*), cinnamon teal (*Anas cyanoptera*), redhead (Aythya americana), American wigeon (*Anas americana*) northern shoveler (*Anas clypeata*); and Canada geese (*Branta canadensis*) utilize shorelines. The Columbia River Islands in Richland and along the Hanford Reach support large migratory populations. Other species observed in the area include great blue heron (*Ardea herodias*), American white pelicans (*Pelecanus erythrorhynchos*), egrets (*Bubulcus ibis*), double-crested cormorants (*Phalacrocorax auritus)*, coots (*Fulica americana*), and common loons (*Gavia immer*) (USFWS 2008, 2012).

In the Lower Yakima River Basin/Pasco Basin wildlife resources are positively affected by several large public land holdings, including the Hanford Site, the Hanford Reach National Monument (HRNM) and the Arid Lands Ecology Preserve (ALEP), all of which provide a

large contiguous range for native species. For City shorelines, several factors affect the suitability of wildlife habitat.

- Local shoreline habitat is connected to the biological reservoir of native species in large public land holdings to the north in the HRNM and Department of Energy Hanford Site. Currently there are few barriers to wildlife movement down the Columbia River to North Richland. Connections from the ALEP are provided over federal, state, and City-owned lands in the Horn Rapids area.
- Wildlife connections also are provided along much of the Yakima River floodplain where agricultural activities and low-intensity residential use provide relatively few barriers to wildlife movement.
- The quality and size of habitat areas in floodplains in the Yakima River Delta and the extent of human disturbance in those areas determines the range of native and introduced populations. These areas among the most productive habitat areas in the Lower Yakima Basin. They are large enough to provide a range of breeding, forage, and shelter for small species, including reptiles, amphibians, small mammals, and birds. These areas, however, are not large enough to provide all of the resources that would support year-round use by large mammals, although animals such as deer may pass through the area and use these areas as corridors to connect with other habitat areas.
- Connections along Columbia River may be provided by public open space. It is likely, however, that this side of the river is not used as extensively as a migration corridor compared to that the opposite bank in Franklin County, which features lower-intensity agricultural and large-lot rural residential uses.
- Urban development near the open space areas along the Columbia River largely limits the use of those areas to species tolerant of human disturbance.
- The Columbia River shoreline south of Leslie Groves Park provides narrow and managed areas of riparian vegetation with low present and potential habitat value and little potential for movement corridors.
- Islands in the Columbia River that are part of the McNary National Wildlife Refuge provide resting areas for a range of migratory wildlife. The river provides a substantial buffer from human disturbance.

- Ongoing efforts to enhance existing habitat in areas where past disturbance has occurred, together with limiting access to critical nesting areas provides the potential to substantially enhance habitat values in existing floodplain areas.

5.2 Reach Characterizations

Characterization of shoreline reaches and subreaches are provided in Appendix A. These reach and subreach characterization tables summarize existing physical conditions; characterizations and analyses for water quantity and sediment, water quality, and habitat and species; ecological functions analysis, including identifying functional conditions, stressors, and restoration and protection opportunities; preliminary shoreline environment designation considerations; existing public access and potential additional public access opportunities; and cumulative impact considerations.

Each reach was categorized overall in terms of ecosystem function. The categories include functioning, partially functioning, or impaired. The framework, definitions, and categories for this analysis were adapted from a system originally developed for Riparian Area Management guidelines proposed by the U.S. Bureau of Land Management (BLM; Prichard 1998). This assessment is a relative assessment with some degree of calibration to reflect the overall conditions found in the City.

The potential ecological function is defined as the highest ecological status a shoreline reach can attain given no development or management constraints, but does take into account the extent to which management (particularly water management) supports ecological function. This is a distinction that is fairly important in for the Yakima River, where the management, storage, diversion, use, and reclamation of water for agriculture, hydropower, and other uses has a substantial effect on the amount of shoreline as well as the overall function of those shorelines.

Ecological function is defined here as the degree of similarity between existing physical and biological conditions, and the potential ecological function of a site; the higher the ecological function, the closer the site is to potential. Potential, for this assessment, encompasses all the resources defined by the interaction of hydrology, vegetation, water quality, and erosion/deposition (soils), and aquatic and riparian habitat. For example, the potential of the

hydrologic component includes the concept of a stream channel's physical characteristics (dimension, pattern, and profile) being within a "normal or usual" range (e.g., entrenchment, sinuosity, width, depth, and slope of the bankfull channel) as defined by landform and geomorphic stream type given current flows.

- **Functioning** is a state of resiliency that will allow a shoreline to hold together during high-flow events with a high degree of reliability. This resiliency allows an area to then produce desired values, such as fish habitat, bird habitat, or forage, over time. Riparian-wetland areas that are not functioning properly cannot sustain these values over time and are susceptible to stochastic disturbances such as fire.
- **Partially functioning** is a state in which the ecological function of the shoreline is somewhat compromised by development or management trends, or is particularly susceptible to future degradation due to development, management or ecological conditions. A partially functioning shoreline has some ability to recover through changes in management or the removal of identified stressors on ecological function.
- **Impaired** is a state in which the ecological functions of the shoreline are heavily compromised by development or management of the reach. An impaired reach has a low probability of recovery, through restoration, due to the degree of structural change to the shoreline, waterbody, and surrounding shorelands. Impaired shorelines can be functionally improved, but are unlikely to be self-sustainable.

6 PUBLIC ACCESS

The Reach Characterization Tables in Appendix A describe public access for each reach in the City and its unincorporated UGA.

The Yakima River shoreline has agricultural lands and open spaces along it, with some publicly owned park and recreation facilities along the lower river and at the confluence with the Columbia River. A regional plan for 30 miles of connected parks and open space has been developed and is called the Tapteal Greenway Plan. Much progress has been made to implement this plan, and continued implementation will result in added and improved shoreline public access.

In general, the City has excellent waterfront shoreline access along most portions of the Columbia River with boating facilities, trails, and active and passive recreation opportunities. Park master plans such as for Columbia Park West will allow for additional and improved facilities. An area where future shoreline access and open space is minimally found is in the North Richland UGA. This area is part of the existing Hanford 300 Area. As development occurs in this area, incorporating shoreline access may be appropriate to meet future demand for access created by the development.

7 INFORMATION SOURCES, ASSUMPTIONS, AND LIMITATIONS

This document is based on the best information available to the City at the time this document was produced. This information was obtained from a variety of sources and was collected and prepared for a variety of different purposes. The information was collected over a long time period; however, a substantial effort was made to use the most accurate and current information available.

Existing data, reports, and information used for the shoreline inventory are shown in the reference section. Generally, the documents used include City-comprehensive plans and municipal codes, USFWS and Washington State Department of Fish and Wildlife (WDFW) subbasin and habitat conservation plans, historical references, and scientific literature on ecological functions. GIS data illustrated in the map folio includes information on hydrology, soils, topography, vegetation, land cover, priority habitat and species concentrations, and other features.

This report relied largely on GIS data and remotely sensed imagery. Integrating various GIS layers together into map folio projects often resulted in polygon boundary discrepancies. Rectification of these discrepancies was only conducted for layers and geographic locations most relevant to the SMP update. For example boundaries for zoning or land use designations do not always match identified OHWM. The identified shoreline jurisdiction areas are only an approximation for purposes of updating the SMP for the City. Precise OHWM delineation and associated shoreline jurisdiction boundaries will be determined on a project-by-project basis, based on site-specific analysis during the proposal development application and review process.

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APPENDIX A
REACH CHARACTERIZATION TABLES

RICHLAND	**CITY OF RICHLAND**
REACH 1	Reach Length: 0.86 mile
Shoreline Jurisdiction: 48.63 acres	

Source:https://www.bing.com/maps/

Description: The shoreline within this reach extends about 4,000 feet along the left bank of the Yakima River and is agricultural land owned by the City of Richland; it is currently in agricultural use.

PHYSICAL CHARACTERISTICS

Ownership: City of Richland

Existing Land Cover/Development: Existing irrigated agriculture

Land Use/Current SMP:

Current SMP Environment Designation: Conservancy

Current Zoning: Agriculture

Current Land Use: Agriculture

Water-dependent Uses: None

Water-related Uses: None

Non-water related Uses: Agriculture

Future Land Use: No change from agricultural use is projected.

Major Infrastructure: Side roads and trails along the shoreline, Horn Rapids Ditch irrigation canal (recently replaced with underground piping), boat ramp

Geomorphic Character: Reach 1 is a relatively short reach located on the east bank (left bank) of the Yakima River at the upstream extent of the City of Richland. It is a confined, single-thread channel, with channel banks and margins that consist of flood deposits. The high bank rises steeply from the channel margins. This reach is located in an alluvial valley and has a slope of 2% to 15%. Soils are loamy fine sand, with a gravelly

RICHLAND	CITY OF RICHLAND

substratum.

Hardened banks: No significant armoring was noted during inspection of aerial photography.

Flooding and Geological Hazards: This reach is adjacent to FEMA High Risk Flood Areas and the majority of the east bank is mapped in this category. Geologic hazards are identified as a low flooding risk due to historical channel migration patterns and the location of a small freshwater emergent wetland along the east bank. There is a slight potential for erosion as the bank has a 2% to 15% slope and the soils contain a gravelly substratum.

Channel Migration Zone: The CMZ is narrow and follows along the perimeter of the high left bank comprised of flood deposits. There is limited floodplain along the left bank, with flooding mostly confined to the channel. The channel is aligned along the toe of this high bank with limited potential for channel migration into the left bank.

REACH CHARACTERIZATION AND ANALYSIS

Water Quantity and Sediment: Water quantity is mainly dependent on releases from Yakima Project reservoirs, irrigation diversions, and irrigation return flow. There are no major surface water inputs or outputs in this reach.

Water Quality: There are water quality listings for Dieldrin, dissolved oxygen, pH, DDT, endosulfan, and temperature. Ecology remarks that the reach returned to Category 5 from 4A in 2005 because the Lower Yakima pesticides total maximum daily load (TMDL) targets are for chronic aquatic life criteria and not the more stringent human health criteria (Ecology 2008). Water quality is not likely to be impacted by local sources in this reach.

Habitat Characteristics and PHS Species Presence:

Upland species include potential nesting and foraging areas for ferruginous hawk, loggerhead shrike, and curlew. Upland species in the vicinity include burrowing owl. There is a variety of species related to wetlands and floodplains in the rural area across the river. The water area of the Yakima River supports migratory waterfowl as a resting and feeding area. The water area of the Yakima River supports concentrations of wintering migratory waterfowl, primarily as a resting and feeding area for dabbling ducks, primarily mallard, Canada Goose, Canvasback, Ring-necked Duck, and Wood Duck. Some nesting may occur.

Because of the very limited riparian area between the water and the buried irrigation piping, there are limited opportunities along the shoreline for species with lifecycle stages related to water. On the other hand, the steep slope provides isolation from urban disturbance and may provide opportunities for reproduction, rearing, and shelter for reptiles, amphibians, and small mammals. Carrying capacities are limited due to the lack of a floodplain and the associated complex mosaic of habitat types and the limited area between the water and the buried irrigation piping.

The area presents few limitations for movement corridors for both aquatic and terrestrial species. The low level of human activity along the shoreline and irrigation access road provide little barrier for movement. The undisturbed Department of Energy land north of Horn Rapids Road provides an area of relatively undisturbed habitat for upland species. Upland species can easily cross SR 240, Horn Rapids Road, and

RICHLAND **CITY OF RICHLAND**

Snyder Road, especially at night, although mortality may be substantial along SR 240.

The National Wetland Inventory (NWI) shows small patches of riparian wetlands present in this reach. The shoreline has historically been confined due to the presence of irrigation canals (recently piped) just downstream of Horn Rapids Dam.

Several fish species populate the Lower Yakima River in this reach. Salmonid fish include fall Chinook salmon, which are known to spawn in this reach, spring Chinook, and steelhead. Coho salmon were historically present here, and a coho reintroduction program is currently underway in the Yakima Basin. Bull trout were historically present and abundant in upper tributaries of the Yakima Basin and may now occur in this reach in low numbers. Lamprey are present but have experienced population decline in recent years. Resident fish include small- and largemouth bass, northern pikeminnow, sculpin, mountain whitefish, white sturgeon, catfish, sucker, walleye, rainbow trout, chiselmouth, dace, common carp, and various minnow species.

Limitations to aquatic habitat in this reach are the elevated water temperatures and low flow common to the lower Yakima River. Fish passage is impeded regionally by the presence of several dams.

ECOLOGICAL FUNCTIONS ANALYSIS (BY SUBREACH)

Level of Existing Function: Partially functioning

Stressors: Channel migration is limited by infrastructure (e.g., roads and ditches), and the Horn Rapids dam upstream limits sediment transport into the reach.

Potential Restoration Opportunities: Identify opportunities to provide high-flow refuge and increase riparian planting density.

Potential Protection Opportunities: Maintain existing riparian and wetland buffers.

Preliminary Shoreline Environment Designation Considerations:

Conservancy

PUBLIC ACCESS

Existing Public Access:

WDFW has a primitive boat launch at Snively Road within or immediately abutting the south end of the reach (WDFW 2012). This launch/water access area is considered a link in the Tapteal Greenway Plan, a 30-mile corridor promoting habitat conservation and public access along the Yakima River (Tapteal 2012).

Existing Public Access Goals:

The Richland Comprehensive Land Use Plan (City of Richland 2008) includes a Land Use Element referencing the Tapteal Greenway Plan and includes a goal to promote regional cooperation in developing an open space network:

> *"OS Policy 1 - Work with other jurisdictions, property owners, open space groups and all interested parties to develop a broadly accepted regional open space plan and appropriate implementation strategies."*

RICHLAND	CITY OF RICHLAND

Identified Public Access Improvements:

The Tapteal Greenway Trail is a conceptually planned improvement along the length of the reach (Tapteal 2012; Ridges to Rivers Open Space Network Steering Committee 2011). Richland's Capital Facilities Element (Richland 2008) references the Tapteal Greenway Plan and incorporates its improvements into the City's Capital Facility Element:

> *"The Tapteal Greenway Plan outlines activities and facilities to be constructed at each of these sites. The Plan states that these facilities should become a component of each jurisdiction's comprehensive plan. Accordingly, these facilities are included in the Capital Facilities Element."*

CUMULATIVE IMPACT CONSIDERATIONS

Watershed level: The SMP has limited influence on Yakima River operations by the U.S. Bureau of Reclamation and irrigation districts, and upriver degradation of water quality conditions. Richland's focus should be on preventing further degradation of Lower Yakima conditions.

Reach level:

- Water quality impacts from impervious surface runoff from nearby transportation facilities and from herbicide and fertilizer run-off

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RICHLAND	**CITY OF RICHLAND**
REACH 2	Reach Length: 0.58 mile
Shoreline Jurisdiction: 14.06 acres	

Source:https://www.bing.com/maps/

Description: The shoreline within this reach extends about 3,000 feet along the left bank of the Yakima River on an outer oxbow with a very narrow band of riparian vegetation on a steep slope up from the river. At the top of the slope is the Bluffs subdivision, which is part of the Horn Rapids Golf Course development. Shoreline Management Act jurisdiction of 200 feet from the OHWM extends to just below the top edge of the slope.

PHYSICAL CHARACTERISTICS

Ownership: Land immediately adjacent to the river is open space dedicated as part of the subdivision with a conservation easement to the City of Richland.

Existing Land Cover/Development: Open space

Land Use/Current SMP:

Current SMP Environment Designation: Conservancy

Current Zoning: Residential

Current Land Use Land Use: Residential and golf course

Water-dependent Uses: None

Water-related Uses: None

Non-water-related Uses: Residential and golf course

Future Land Use: No change from current use is projected.

Major Infrastructure: Informal trail or dirt road halfway up shoreline bank

RICHLAND	CITY OF RICHLAND

Geomorphic Character: Reach 2 is a short segment located on the east bank (left bank) of the Yakima River. It is a confined, single-thread channel located along the outside apex of a tight meander bend. The river banks are high and steep and consist of both alluvium and flood deposits. The soils are comprised mostly alluvial and flood deposits of loamy sand. The river is constrained by farmland and local roads, and historical photos indicate very little movement on the east bank between 1952 and 2011. Channel migration occurred on the opposite bank more noticeably onto farmland.

Hardened banks: No armoring, but steep graded bank makes up the entire shoreline area

Flooding and Geological Hazards: This reach is mapped within the FEMA High Risk Flood Area and supports freshwater emergent wetlands and forested/shrub wetlands. Geologic hazards include a low risk of flooding. Flooding is unlikely due to historical channel migration patterns.

Channel Migration Zone: The channel migration zone in Reach 2 is narrow and follows along the perimeter of the left bank (outside of the meander bend). The left bank is very high and comprised of alluvium and flood deposits. There is limited floodplain, with flooding confined to the channel. The channel is aligned along the toe of this high bank with limited potential for channel migration into the left bank.

REACH CHARACTERIZATION AND ANALYSIS

Water Quantity and Sediment: Water quantity is mainly dependent on releases from Yakima Project reservoirs, irrigation diversions, and irrigation return flow. There are no major surface water inputs or outputs in this reach, except perhaps for shallow groundwater returns from the upstream Barker Ranch area.

Water Quality: Water quality listings for Dieldrin, dissolved oxygen, pH, DDT, endosulfan, and temperature. Ecology remarks that the reach returned to Category 5 from 4A in 2005 because the Lower Yakima pesticides total maximum daily load (TMDL) targets are for chronic aquatic life criteria and not the more stringent human health criteria (Ecology 2008). A nearby golf course and impervious surfaces from roads and residential roofs may contribute to likely limited stormwater runoff in Reach 2. Shallow groundwater returns to the river from the upstream Barker Ranch could reduce water temperature in this reach.

Habitat Characteristics and PHS Species Presence:

There are no threatened or endangered terrestrial species present in the immediate vicinity.

The water area of the Yakima River throughout this reach supports concentrations of wintering migratory waterfowl, primarily as a resting and feeding area for dabbling ducks, primarily mallard, Canada Goose, Canvasback, Ring-necked Duck, and Wood Duck. Some nesting may occur.

Because of the very limited riparian area between the water and the canal, there are limited opportunities along the shoreline for species with aquatic lifecycle stages. On the other hand, the steep slope isolates the area from urban disturbance and may provide opportunities for reproduction, rearing, and shelter for reptiles, amphibians, and small mammals. Carrying capacity is limited by the lack of a floodplain and the associated complex mosaic of habitat types and the limited area between the water and the canal. Proximity impacts such as noise, light, and glare, as well as predation from domestic animals related to adjacent urban use, likely limit productivity of adjacent areas.

RICHLAND	CITY OF RICHLAND

The area presents few opportunities for movement corridors for terrestrial species. The high level of human activity above the slope likely limits both habitat and the potential for movement by species except birds and flying insects. The residential development and golf course is an effective barrier for movement between the river and undisturbed Department of Energy land to the north.

The National Wetland Inventory (NWI) shows small patches of riparian wetlands present in this reach. The shorelines are natural and are flanked by residential areas to the north and agriculture to the south.

Several fish species populate the Lower Yakima River in this reach. Salmonid fish include fall Chinook salmon, which are known to spawn just southwest of this reach, steelhead, and spring Chinook. Coho salmon were historically present here, and a coho reintroduction program is currently underway in the Yakima Basin. Bull trout were historically present and abundant in upper tributaries of the Yakima Basin and may now occur in this reach in low numbers. Lamprey are present but have experienced population decline in recent years. Resident fish include small- and largemouth bass, northern pikeminnow, sculpin, mountain whitefish, white sturgeon, catfish, sucker, walleye, rainbow trout, chiselmouth, dace, common carp, and various minnow species.

Limitations to aquatic habitat in this reach are the elevated water temperatures and low flow common to the lower Yakima River. Fish passage is impeded regionally by the presence of several dams.

ECOLOGICAL FUNCTIONS ANALYSIS (BY SUBREACH)

Level of Existing Function: Partially functioning

Stressors: Upland residential development (just outside the shoreline jurisdiction boundary) and recreation use

Potential Stressors: Medium density residential allows for 10 dwelling units per acre

Potential Restoration Opportunities: Consider options to restore vegetation on cut bank to prevent unnatural deposition of sediment

Potential Protection Opportunities: Limit encroachment by upland residential uses, and evaluate potential opportunities for protecting water quality from golf course operations

Preliminary Shoreline Environment Designation Considerations:

Conservancy

PUBLIC ACCESS

Existing Public Access:

The public Horn Rapids Golf Course lies along Reach 2 (City of Richland 2012).

Existing Public Access Goals:

See Reach 1 regarding the City's overall goal to develop and implement a regional open space plan.

Identified Public Access Improvements:

Similar to Reach 1, the conceptual Tapteal Greenway Trail is planned to continue along this reach.

RICHLAND	CITY OF RICHLAND
CUMULATIVE IMPACT CONSIDERATIONS	
The SMP has limited influence on Yakima River operations by the U.S. Bureau of Reclamation and irrigation districts and upriver degradation of water quality conditions. Richland's focus should be on preventing further degradation of Lower Yakima conditions. **Reach level:** • Impacts from potential development along the shoreline in residential areas • Water quality impacts from potential herbicide and fertilizer use on irrigated landscaped lawn, and garden areas • Potential for vegetation alterations from existing development • Other impacts from non-native predation (domestic pets, smallmouth bass, and pike minnow)	

References:

City of Richland. 2012. 2012 - 2018 Draft: Parks, Trails and Open Space Master Plan. Available at: http://www.ci.richland.wa.us/index.aspx?nid=227. Accessed in December 2012.

RICHLAND	**CITY OF RICHLAND**
REACH 3	Reach Length: 4.56 mile
Shoreline Jurisdiction: 896.32 acres (approx.)	

Source:https://www.bing.com/maps/

Description: The shoreline within this reach extends about 4 miles along the left bank of the Yakima River from north of Glen Road to the I-182 bridge. Land use is largely agriculture or large lot rural lands in lots of 2 to 10 acres to the border of the W.E. Johnson Park at about the alignment of Swift Boulevard. The park and lands to the south are in public ownership. This area is largely floodplain that ranges up to ¾ of a mile wide to Glen Briar Lane. Between this point and the bridge, there is a narrow riparian corridor bounded by a steep slope.

Subreaches (SR), see Figure:

SR A: Begins at the City Limits and extends to the south to a flood channel at about 1.5 river miles south of the Van Giesen Street Bridge

SR B: Extends approximately 0.8 miles to approximately the alignment of Glen Briar Lane

SR C: Extends approximately 1.5 miles to the I-182 bridge

RICHLAND	CITY OF RICHLAND
PHYSICAL CHARACTERISTICS	
Ownership: Private land within the majority of SR A, City land within SR B, and federal ownership along shoreline of SR C	
Existing Land Cover/Development: Irrigated agriculture, native riparian land cover, and floodplain open space	
Land Use/Current SMP: Current SMP Environment Designation: Rural, except for Conservancy at Fox Island (SR A); Conservancy (SRs B and C) Current Zoning: Agriculture, suburban agriculture, floodplain, park and public facility, and natural open space Current Land Use Land Use: Agriculture, large lot residential, public park, and open space Water-dependent Uses: None Water-related Uses: None Non-water-related Uses: Agriculture, residential, park and open space Future Land Use: No change from existing land use is projected. Some larger lots may be sub-dividable.	
Major Infrastructure: Public water access, public water system, W.E. Johnson Park, SR 224 and crossing, and I-182 and crossing.	
Geomorphic Character: Reach 3 is a long segment located on the east bank (left bank) of Yakima River that extends downstream to the I-182 Bridge. This river reach is a meandering, mostly single-thread, low gradient channel. At the upstream extent, the SR 224 (Van Giesen Street) Bridge crossing constricts the channel. Based on the available LiDAR coverage and historical air photos, the river has migrated through its valley in this reach, as evidenced by old channel scars. Geologic units are primarily alluvial deposits. Soils consist of fine loamy sand, loamy sand, and loamy fine sand. Hardened banks: Armoring includes bridge abutments for I-182 and SR 224.	
Flooding and Geological Hazards: Approximately 25% of this reach is mapped within the FEMA High Risk Flood Area. Geologic hazards are primarily a low risk of flooding as evidenced by historical photos.	
Channel Migration Zone: Reach 3 is a long reach along the left bank of the Yakima River and includes multiple bridge crossings. The CMZ is wide in places where the channel is not confined by infrastructure and where the floodplain is wide and made of erodible materials (alluvium and soils comprised of sand). Areas of the reach include old meander bends that consist of mostly low ground that is included in the floodway. The CMZ narrows where infrastructure (highways) limits the migration potential.	
REACH CHARACTERIZATION AND ANALYSIS	
Water Quantity and Sediment: Water quantity is mainly dependent on releases from Yakima Project reservoirs, irrigation diversions, and irrigation return flow. There are no major surface water inputs or outputs in this reach.	

RICHLAND	CITY OF RICHLAND

Water Quality: There are water quality listings for Dieldrin, dissolved oxygen, pH, DDT, endosulfan, and temperature. Ecology remarks that the reach returned to Category 5 from A in 2005 because the Lower Yakima pesticides total maximum daily load (TMDL) targets are for chronic aquatic life criteria and not the more stringent human health criteria (Ecology 2008). Nearby agricultural land may contribute surface runoff in SR A, and nearby impervious surfaces from roads and residential roofs may contribute stormwater runoff in SR C.

Habitat Characteristics and PHS Species Presence:

No threatened or endangered terrestrial species present in the immediate vicinity.

The water area of the Yakima River throughout this reach supports concentrations of wintering migratory waterfowl, primarily as a resting and feeding area for dabbling ducks, primarily mallard, Canada Goose, Canvasback, Ring-necked Duck, and Wood Duck. Some nesting may occur.

SR A: Shoreline riparian habitat in this reach varies greatly according to topography and human alteration.

Between the City limits and the Van Giesen Street Bridge, topography limits riparian vegetation to a relatively narrow band.

South of the bridge, the riparian vegetation expands within the floodway, except for a short armored stretch where Van Giesen Street is adjacent to the water.

The rural residential large lot area along the Yakima River results in riparian vegetation that varies from parcel to parcel depending on the extent of upland clearing. The floodway in this area includes an overflow channel to the east with a more complex mosaic of vegetation and habitat. Except for the overflow channel, most upland vegetation is mowed pasture. Proximity impacts such as noise, light, and glare and predation from domestic animals related to adjacent large lot use likely further limits productivity of adjacent areas.

Upland species include potential nesting and foraging areas for ferruginous hawk, loggerhead shrike, and curlew. Upland species in the vicinity include burrowing owl. A variety of species related to wetlands and floodplains are present in the floodplain and wetland complex.

Because of the change in vegetation cover, limited riparian vegetation, and proximity of single-family residences, the area along the shoreline provides limited habitat for reptiles, amphibians, and small mammals that depend on water for lifecycle functions. The limited riparian vegetation and associated mosaic of habitat types likely limits functions largely to foraging.

The area presents moderate limitations for movement corridors for terrestrial species other than birds. The level of human activity from low intensity residential use and the traffic on Van Giesen Street likely limit daytime crossings to the vicinity of the bridge over the river and the bridge over the overflow channel. The highway and roads in the vicinity, however, are not a physical barrier to movement by most animals, especially at night, although mortality from vehicle collisions likely is moderate to high. Upstream of the Van Giesen Bridge, the low intensity development on Fox Island and the West Richland Golf Course on the right bank likely provides a less constrained corridor. South of the bridge the left bank in Richland provides the most effective potential corridor for movement because of the levee on the right bank in West Richland.

SR B: In this park and open space area, the extent of riparian vegetation is largely dependent upon topography. Several large wetland areas are present in abandoned channels within the floodplain.

The area includes a complex mosaic of riparian and upland vegetation, with some areas of shrub steppe sagebrush and grasses. Floodway and riparian areas include native trees and shrubs including Cottonwood, Alder Red Osier Dogwood, and a variety of Willow species, as well as invasive species such as Russian Olive.

This area primarily provides productive floodplain and wetland habitat for small resident species of reptiles, amphibians, and small mammals, particularly those with lifecycle stages dependent on water. The small area of upland shrub/steppe habitat and the inherent low productivity of such habitat limits the range of species and populations. This likely supports a small resident population, as well as providing additional habitat for mobile species that can move between a number of small habitat areas. The availability of the area to larger mammals, such as mule deer, is dependent upon preservation of migration routes, which are currently constrained both upriver and across adjacent urbanized uplands.

The area provides opportunities for movement corridors for terrestrial species; however, human activity on the trail system within the area above the bluff and the trail through the area likely limits movement to evenings and night, as well as seasons of lower human use. The urban development to the east provides little habitat or movement potential for shrub steppe species.

SR C: This subreach extends approximately 7,500 feet to the I-182 bridge. A steep slope adjacent to the river limits riparian vegetation and provides limited area and limited habitat complexity. The presence of a trail connection through the area also introduces human disturbance. This area has limited habitat value for reptiles, amphibians, and small mammals dependent on the water for specific lifecycle stages.

The area provides opportunities for movement corridors for terrestrial species; however, the high level of human activity above the bluff and the trail through the area likely limits movement to evening, night, and seasons of lower human use. The urban development to the east provides little habitat or movement potential for shrub steppe species. Proximity impacts such as noise, light, and glare from adjacent urban use likely limit productivity of adjacent areas.

The National Wetland Inventory (NWI) shows large patches of riparian wetlands present in this reach, especially concentrated near SR B. The shoreline has long expanses of natural areas in riparian areas of SR B. Shorelines in SR A are natural but are flanked by agricultural areas, and SR C shorelines are natural and surrounded by residential development.

Several fish species populate the lower Yakima River in this reach. Salmonid fish include steelhead and spring and fall Chinook salmon. Coho salmon were historically present here, and there is currently a coho reintroduction program underway in the Yakima Basin. Bull trout were historically present and abundant in upper tributaries of the Yakima basin and may now occur in this reach in low numbers. Lamprey are present but have experienced population decline in recent years. Resident fish include small- and largemouth bass, northern pikeminnow, sculpin, mountain whitefish, white sturgeon, catfish, sucker, walleye, rainbow trout, chiselmouth, dace, common carp, and various minnow species.

Limitations to aquatic habitat in this reach are the elevated water temperatures and low flow common to the lower Yakima River. Fish passage is impeded regionally by the presence of several dams.

RICHLAND	CITY OF RICHLAND
ECOLOGICAL FUNCTIONS ANALYSIS (BY SUBREACH)	
SUBREACH A	
Level of Existing Function: Small section on right bank is functioning and rest of subreach is partially functioning **Stressors:** Upland development in shrub steppe areas, channel migration limited by highway in one segment, residential with irrigated lawns within portion of sub-reach, road crossing, agriculture irrigation practices. **Potential Restoration Opportunities:** Improve riparian buffer, consider geomorphically appropriate control of channel migration at Van Giesen, small farm buffer strips for irrigation management and water quality **Potential Protection Opportunities:** Protect low lying areas and relic channels	
Preliminary Shoreline Environment Designation Considerations: Agriculture	
SUBREACH B	
Level of Existing Function: Functioning **Stressors:** Minimal floodplain development and limited riparian in some areas **Potential Restoration Opportunities:** Improve consistency of riparian conditions, improve side channel connectivity, and evaluate opportunities for additional side channels **Potential Protection Opportunities:** Protect existing floodplain and riparian habitat	
Preliminary Shoreline Environment Designation Considerations: Low Intensity	
SUBREACH C	
Level of Existing Function: Partially functioning **Stressors:** Upland development and recreation use, channel migration limited by SR 240, vegetation on cut slope near SR 240 is limited **Potential Stressors**: Single-family residential allows for 5 dwelling units per acre. Multiple-family residential allows for 10 or more dwelling units per acre. **Potential Restoration Opportunities:** Shrub steppe restoration based on WDFW guidelines, consider options to restore vegetation on cut bank to prevent unnatural deposition of sediment (particularly on cut banks just above river) **Potential Protection Opportunities:** Protect existing floodplain and riparian habitat.	
Preliminary Shoreline Environment Designation Considerations: Parallel Conservancy to top of slope and Residential above slope	

RICHLAND	CITY OF RICHLAND
PUBLIC ACCESS	
Existing Public Access: **SR A:** WDFW provides another primitive boat launch at Hyde Road (road end) (WDFW 2012). An on-street trail traverses the river at Van Giesen Street (City of Richland 2012). Fox Island is designated as natural open space on the Comprehensive Land Use Plan (City of Richland 2008). The Tapteal Greenway Association identifies that environmental education activities take place at Tapteal Bend (access on Van Giesen just east of Yakima River Bridge). The Tapteal Bend location is part of the Tapteal Water Trail site. **SR B:** The subreach contains W.E. Johnson Park and associated trails. **SR C:** The Duportail primitive boat launch is provided by WDFW and is considered part of the Tapteal Greenway Water Trail. A neighborhood park is located along Glen Briar Lane (shown as undeveloped; Richland 2012). An existing soft surface trail in W.E. Johnson Park extends along the shoreline in this reach.	
Existing Public Access Goals: See Reach 1 regarding the City's overall goal to develop and implement a regional open space plan. The Tapteal Greenway Plan and Ridges to Rivers Vision Plan identify a desire to "[e]stablish a connective trail between W.E. Johnson Park and Horn Rapids County Park" to the north, which also captures Reaches 1 and 2. This same concept is included in the City's Draft Parks, Trails and Open Space Master Plan (2012).	
Identified Public Access Improvements: **SR A:** None **SR B:** The City has adopted a master plan for W.E. Johnson Park (City of Richland 2011 and 2012) **SR C:** None	
CUMULATIVE IMPACT CONSIDERATIONS	
Watershed level: The SMP has limited influence on Yakima River operations by the U.S. Bureau of Reclamation and irrigation districts, and upriver degradation of water quality conditions. Richland's focus should be on preventing further degradation of Lower Yakima conditions. **Reach level:** • Water quality impacts from herbicide and fertilizer run-off • Impacts from recreation use along the shoreline • Other impacts from non-native predation (domestic pets, smallmouth bass, and pike) • Impervious surfaces leading to habitat loss and potential runoff • Vegetation alterations removing organic material and increasing soil erosion • Structural effects on habitat through road fragmentation and development within the uplands	

References:

City of Richland. WE Johnson Draft Master Plan-Option A.
Available: http://richlandparksandrec.com/DocumentCenter/Home/View/173. Accessed.

RICHLAND	**CITY OF RICHLAND**
REACH 4	Reach Length: 4.89 mile
Shoreline Jurisdiction: 1737.52 acres (approx.)	

Source:https://www.bing.com/maps/

Description: The shoreline within this reach extends about 3 miles along the river south of the I-182 bridge over the Yakima River extending to the I-182 bridge over the Columbia River and is floodplain under U.S. Army Corps of Engineers jurisdiction and adjacent uplands managed by the City of Richland.

Subreaches (SR), see Figure:

SR A: Extends approximately 2 miles from the I-182 bridge to the SR 240 bridge

SR B: Extends approximately 2.3 miles from the SR 240 bridge to about 700 feet east of the Columbia River confluence

SR C: Extends approximately 2,300 feet around the point at the confluence of the Yakima and Columbia rivers

PHYSICAL CHARACTERISTICS

Ownership: U.S. Army Corps of Engineers leased to the City of Richland

RICHLAND	CITY OF RICHLAND
Existing Land Cover/Development: Open space, Industrial development (gravel mining) mostly outside of the shoreline jurisdiction	
Land Use/Current SMP: Current SMP Environment Designation: Conservancy Current Zoning: Natural open space Current Land Use: Natural open space, developed open space, industrial, and public facility (SR 4C) Water-dependent Uses: None Water-related Uses: Trails in the area provide for water enjoyment Non-water-related Uses: Open space Future Land Use: No change from open space use is projected.	
Major Infrastructure: Public water access, public water system, informal trails along the shoreline, SR 240 and crossing, and I-182 and crossing.	
Geomorphic Character: Reach 4 extends along the Yakima River (left bank) from the I-182 bridge downstream to its confluence with the Columbia River. Reach 4 also includes a small segment of the Columbia River (right bank) upstream of the confluence with the Yakima River. The river is a low-gradient, single-thread channel throughout the reach. The river channel generally widens downstream through the reach. Deposits of alluvial sediments have created island features. Soils are all alluvial silt loams. This reach is moderately constrained by roads; however, historically this is an actively moving channel. Hardened banks: Armoring includes abutments for the I-182 and Highway 240 bridges.	
Flooding and Geological Hazards: Small parts of this reach are mapped in the FEMA High Risk Flood Areas, and it supports freshwater forested/shrub wetlands. Flooding risks in this area are moderate because of active historical channel movement and expansive OHWM area.	
Channel Migration Zone: Reach 4 is located along the left bank of the Yakima River and includes a small segment of the Columbia River. Infrastructure influencing the location of the CMZ includes the I-182 bridge crossing at the upstream extent and a railroad and the Hwy 240 bridge crossings. A levee is located in the left bank floodplain downstream of the I-182 Bridge (extending downstream to Hwy 240) and protects the area of the City or Richland Waste Water Treatment Plant. Along the upstream extent of this reach, the CMZ generally follows an off-set of this levee alignment through the floodplain. The CMZ does not extend back to the levee alignment because of the distance from the channel. Downstream of Hwy 240 bridge, the CMZ widens in the broad flat floodplain at the mouth of the Columbia River. There are no limiting infrastructure features to limit channel migration. Per Ecology, a CMZ delineation is not necessary for the Columbia River.	
REACH CHARACTERIZATION AND ANALYSIS	
Water Quantity and Sediment: Water quantity is influenced by releases from Yakima Project reservoirs, irrigation diversions, and irrigation return flow; and from the Columbia River McNary Pool, with water extending upstream near the I-182 bridge, as this reach includes the Yakima River delta. The major surface water inputs in this reach include the City's wastewater treatment plant discharge. Badger Mountain	

RICHLAND	CITY OF RICHLAND

Irrigation District also diverts water in this reach for agriculture and landscape irrigation purposes.

Water Quality: There are water quality listings for Dieldrin, dissolved oxygen, pH, DDT, endosulfan, and temperature. Ecology remarks that the reach returned to Category 5 from 4A in 2005 because the Lower Yakima pesticides total maximum daily load (TMDL) targets are for chronic aquatic life criteria and not the more stringent human health criteria (Ecology 2008). Additionally, WWTP discharges in this reach may impact water quality for a short time downstream until it completely mixes with the Yakima River and Columbia River.

Habitat Characteristics and PHS Species Presence:

No threatened or endangered terrestrial species present in the immediate vicinity.

The water area of the Yakima River supports migratory waterfowl as a resting and feeding area. Some nesting may occur.

SR A: This subreach includes the 276-acre Chamna Natural Preserve managed by the Tapteal Greenway Association. It is part of the Yakima River delta and is managed in conjunction with other lands owned by the USACE as a Nature Preserve with limited non-motorized access. Habitat incudes about 100 acres of upland, including 50 acres of abandoned farm fields. Floodway and riparian areas are dominated by invasive Russian Olive with a mixture of native and non-native trees and shrubs including Cottonwood, Alder, Red Osier Dogwood, and a variety of Willow species (CWG 2006). The downstream 1,000 feet closest to the SR 240 bridge is the site of a former gravel mine and has more limited riparian habitat than upstream areas.

This area primarily provides productive floodplain and wetland habitat for reptiles, amphibians, and small mammals with lifecycle stages dependent on water. The prevalence of invasive species limits habitat productivity. The small area of upland shrub/steppe habitat and the inherent low productivity of such habitat limits the range of species and populations. The area likely functions as available habitat for mobile species that can move between small habitat areas rather than supporting a resident population. The availability of the area to larger mammals, such as mule deer is dependent upon preservation of migration routes, which are constrained both upriver and across adjacent urbanized uplands.

This area presents few limitations for movement corridors for both aquatic and terrestrial species. The level of human activity provided by trail systems through the area likely retards animal movement during periods of high human use.

SR B: This subreach includes the portion of the Yakima River delta downstream of SR 240 and is managed in conjunction with other lands owned by the USACE as a Nature Preserve with limited non-motorized access. Habitat incudes productive floodplain and wetland habitat for reptiles, amphibians, and small mammals with lifecycle stages dependent on water. The area has effective connections with other portions of the delta upstream and to the south and provides a range of functions for a variety of mobile species that can move between various habitat areas. The dense urban development along the shoreline to the north precludes movement of terrestrial species other than by flight or swimming.

The upland shrub/steppe habitat in the Columbia Point area above the adjacent steep slope is isolated by the I-182 freeway to the north and is substantially degraded by past agricultural and off-road use, which further reduces the low productivity of such habitat limits the range of species and populations. The availability of the

RICHLAND	CITY OF RICHLAND

area to larger mammals, such as mule deer, is dependent on preservation of regional migration routes.

SR C: This subreach includes about 800 feet of the Yakima River delta upstream of I-182 and consists of a steep bank that rises from the water's edge with a very narrow margin of riparian vegetation. Riparian habitat value is very limited.

The National Wetland Inventory (NWI) shows patches of riparian wetlands in most of SR A and SR B, as the shoreline nears the Yakima Delta. SR C has no wetlands. The immediate shorelines in SR A and most of SR B are natural, but the river's course is confined due to the City's presence. SR C is confined due to the proximity of Highway 12.

Several fish species populate the Lower Yakima River in this reach. Salmonid fish include steelhead and spring and fall Chinook salmon. Coho salmon were historically present here, and a coho reintroduction program is currently underway in the Yakima Basin. Bull trout were historically present and abundant in upper tributaries of the Yakima Basin and may now occur in this reach in low numbers. Lamprey are present but have experienced population decline in recent years. Resident fish include small- and largemouth bass, northern pikeminnow, sculpin, mountain whitefish, white sturgeon, catfish, sucker, walleye, rainbow trout, chiselmouth, dace, common carp, and various minnow species.

Limitations to aquatic habitat in this reach are the elevated water temperatures and low flow common to the lower Yakima River. Fish passage is impeded regionally by the presence of several dams.

ECOLOGICAL FUNCTIONS ANALYSIS (BY SUBREACH)

SUBREACH A

Level of Existing Function: Functioning

Stressors: Bridges limit channel migration and control patterns of sediment deposition, industrial uses (gravel mine and wastewater treatment plant), backwater effect from McNary dam, wastewater treatment discharge from outfall, recreation uses

Potential Restoration Opportunities: Consider opportunity to buffer from adjacent industrial land (near SR-240 bridge) use or reclaim areas of gravel mine for off channel rearing habitat

Potential Protection Opportunities: Protect riparian and wetland vegetation in low-lying floodplain areas

Preliminary Shoreline Environment Designation Considerations:

Parallel Conservancy and Recreation (100' from OHWM/Industrial inland)

SUBREACH B

Level of Existing Function: Functioning

Stressors: Backwater effect from McNary dam, bridge crossings limit channel migration and McNary pool controls sediment deposition, water quality concerns related to past agriculture practices, recreation use.

Potential Restoration Opportunities: Adjacent to SR 240; revegetation of riparian areas

Potential Protection Opportunities: Shrub-steppe protection consistent with WDFW guidelines, limit public access to designated trails

RICHLAND	CITY OF RICHLAND
Preliminary Shoreline Environment Designation Considerations: Parallel Conservancy below slope and Recreation above slope	
SUBREACH C	
Level of Existing Function: Functioning, partially functioning, impaired **Stressors:** Limited riparian vegetation due natural conditions, degraded shrub-steppe from roads and trails and recreation use **Potential Restoration Opportunities:** Riparian and shrub steppe vegetation restoration as part of future development or management decisions **Potential Protection Opportunities:** Prevent further degradation to shrub steppe and riparian areas	
Preliminary Shoreline Environment Designation Considerations: Parallel Natural below slope, Mixed Use above slope	
PUBLIC ACCESS	
Existing Public Access: **SR A:** As noted in the habitat discussion above, this reach includes the 276-acre Chamna Natural Preserve. The City's draft parks plan (City of Richland 2012) indicates that the area is owned by the U.S., managed by the U.S. Army Corps of Engineers, and leased to the City of Richland. Chamna has two land use designations: 262 acres of natural open space and 32 acres of developed open space. About 11 miles of trails are found throughout the preserve. The Tapteal Greenway Association maintains trails (Tapteal Greenway Association 2012). The preserve is part of the Yakima River delta and is managed in conjunction with other lands owned by the Corps as a nature preserve with limited non-motorized access. **SR B:** As described above, this reach includes the portion of the Yakima River delta downstream of SR 240 and is managed in conjunction with other lands owned by the Corps as a nature preserve with limited non-motorized access. City inventories show a portion of the land as part of the Columbia Point Environment. A primitive boat launch is mapped (City of Richland 2012). **SR C:** The City identifies this reach as part of the Columbia Point Environment. The Tapteal Greenway Association (2012) notes this area has "controlled access for muscle-powered recreation."	
Existing Public Access Goals: The City's Comprehensive Plan Capital Facilities Element includes a stewardship goal: • Protect and provide responsible stewardship of the community's unique natural habitat and ecologically sensitive and scenic waterfront areas; develop public recreational activities appropriate to these venues	

RICHLAND	CITY OF RICHLAND

Identified Public Access Improvements:

SR A: Richland's Comprehensive Plan (2008) includes several objectives in the Parks and Recreation element, including:

- Complete the Chamna Natural Preserve ADA Loop Trail
- Construct restroom facilities at all community parks, larger neighborhood parks, and the Chamna Natural Preserve

The City's Draft Parks, Trails and Open Space Master Plan (2012) identifies the following action:

- Establish trails connecting Amon Creek Natural Preserve with Little Badger Mountain and the Chamna Natural Preserve

CUMULATIVE IMPACT CONSIDERATIONS

Watershed level: The SMP has limited influence on Yakima River operations by the U.S. Bureau of Reclamation and irrigation districts, and upriver degradation of water quality conditions. Richland's focus should be on preventing further degradation of Lower Yakima conditions.

Reach level:

- Impacts from recreation use and recreation development along the shoreline
- Water quality impacts from impervious surface runoff from transportation facilities
- Potential for vegetation alterations from existing and future development
- Other impacts from non-native predation (domestic pets, smallmouth bass, and pike minnow)

RICHLAND	**CITY OF RICHLAND**
REACH 5	Reach Length: 1.58 mile
Shoreline Jurisdiction: 192.02 acres	

Source:https://www.bing.com/maps/

Description: The shoreline within this reach extends about 8,300 feet along the right bank of the Yakima River from the City Limits at Northlake Drive to the I-182 Yakima River bridge.

PHYSICAL CHARACTERISTICS

Ownership: U.S. Army Corps of Engineers

Existing Land Cover/Development: Open space with no significant development other than the I-182 crossing and the Columbia Irrigation District canal.

Land Use/Current SMP:

Current SMP Environment Designation: Conservancy

Current Zoning: Natural open space (east of Columbia Canal)

Adjacent Zoning: Natural open space

- Limited business (adjacent to City View Drive, west of Columbia Canal)
- Medium-density residential small lot (adjacent to Ridgecliff Drive, west of Columbia Canal)

Current Land Use Land Use: Natural open space (east of Columbia Canal)

- Agriculture (west of Columbia Canal)
- Vacant commercial (west of Columbia Canal)
- Single-family residential (west of Columbia Canal)

Water-dependent Uses: None

Water-related Uses: None

Non-water-related Uses: Agriculture, commercial, single-family residential

RICHLAND	CITY OF RICHLAND
Future Land Use: No change from the current pattern of use is projected for commercial and residential areas, although vacant commercial areas are likely to develop in the future. Existing open space use is not likely to change in the future consistent with the comprehensive plan designation of the area as urban reserve, which provides that these lands that are to be held in reserve during the 20-year planning period of the comprehensive plan. There is no potential for water-oriented use on private upland parcels due to the intervening open space.	
Major Infrastructure: Public water access, public water system, Informal trails along the shoreline, Columbia Canal irrigation channel, transmission lines over river	
Geomorphic Character: Reach 5 is located on the west bank (right bank) of Yakima River upstream of the I-182 bridge. This reach is characterized as a meandering, mostly single-thread channel that is moderately stable, with slight channel migration since 1956 (based on aerial photo interpretation). The geologic units along the reach corridor consist of alluvium, flood deposits, and, to a lesser extent, basalt bedrock and sedimentary rocks. The channel is partially confined against the right bank valley wall. The right bank valley wall rises steeply at its margins. An irrigation canal is located along the channel margins. Throughout much of this reach, soils consist mostly of loamy fine sand. This reach primarily supports freshwater forested/shrub wetlands—wetland acreage increases as this reach nears the confluence of the Columbia and Yakima rivers. Hardened banks: No significant armoring was noted during inspection of aerial photography.	
Flooding and Geological Hazards: Approximately 25% of this reach is mapped within the FEMA High Risk Flood Area. Geologic hazards are primarily a low risk of flooding as evidenced by historical channel movement.	
Channel Migration Zone: Reach 5 is located along the right bank of the Yakima River upstream of the I-182 bridge. The CMZ is mostly defined by the presence of infrastructure. An irrigation canal located along the left bank limits the CMZ throughout most of this reach. The distance of the alignment of the irrigation canal to the Yakima River increases downstream. A bedrock outcrop is located along the left bank also limits migration. Upstream of this bedrock outcrop, where the canal is aligned closer to the channel, the CMZ follows this canal. Downstream, the CMZ widens where the canal is offset back from the river a greater distance. In the area immediately upstream of the I-182 bridge, the floodplain is wider, allowing for more channel migration through the alluvium and sand dominated soils.	
REACH CHARACTERIZATION AND ANALYSIS	
Water Quantity and Sediment: Water quantity is influenced by releases from Yakima Project reservoirs, irrigation diversions, and irrigation return flow.	
Water Quality: There are water quality listings for Dieldrin, dissolved oxygen, pH, DDT, endosulfan, and temperature. Ecology remarks that the reach returned to Category 5 from 4A in 2005 because the Lower Yakima Pesticides total maximum daily load (TMDL) targets are for chronic aquatic life criteria and not the more stringent human health criteria (Ecology 2008). Water quality is not likely to be impacted by local sources in this reach.	

RICHLAND	CITY OF RICHLAND

Habitat Characteristics and PHS Species Presence:

No threatened or endangered terrestrial species present in the immediate vicinity.

The water area of the Yakima River supports migratory waterfowl as a resting and feeding area. Some nesting may occur.

This floodplain within this area is part of the Yakima River delta and is managed in conjunction with other lands owned by the USACE as a Nature Preserve with limited non-motorized access. The initial 1,000 feet of this area is a floodplain separated by a slough from the steep bank defining the adjacent areas. This area primarily provides productive floodplain and wetland habitat for reptiles, amphibians and small mammals with lifecycle stages dependent on water. Floodway and riparian areas are characterized by both native and invasive species. The relative lack of ongoing human disturbance provides for a vegetation community supporting a range of species. The small area, however, limits the range and number of species.

Upland shrub/steppe habitat has been altered in the past and provides a limited area of habitat for a variety of species.

The 1,500 linear feet of residential development along View Drive is bounded by steep slopes and has relatively low habitat value due both to a narrow area of riparian vegetation and proximity impacts from noise.

This area presents few limitations for movement corridors for both aquatic and terrestrial species. Movement upstream us largely dependent on the floodway areas on the opposite side of the river due to urban development on the left band adjacent to the river. The Columbia Canal provides a barrier for human activity. Proximity impacts such as noise, light, and glare from adjacent urban use likely limit productivity of adjacent areas.

The National Wetland Inventory (NWI) shows patches of riparian wetlands present in this reach, especially along the immediate shoreline. Shorelines are natural but are confined by the irrigation canal and the Highway 182 corridor.

Several fish species populate the Lower Yakima River in this reach. Salmonid fish include steelhead and spring and fall Chinook salmon. Coho salmon were historically present here, and a coho reintroduction program is currently underway in the Yakima Basin. Bull trout were historically present and abundant in upper tributaries of the Yakima basin and may now occur in this reach in low numbers. Lamprey are present but have experienced population decline in recent years. Resident fish include small- and largemouth bass, northern pikeminnow, sculpin, mountain whitefish, white sturgeon, catfish, sucker, walleye, rainbow trout, chiselmouth, dace, common carp, and various minnow species.

Limitations to aquatic habitat in this reach are the elevated water temperatures and low flow common to the Lower Yakima River. Fish passage is impeded regionally by the presence of several dams.

ECOLOGICAL FUNCTIONS ANALYSIS (BY SUBREACH)

Level of Existing Function: Functioning

Stressors: Irrigation canal with access road, some shoreline access points, McNary pool effects, transmission lines, little channel migration potential

RICHLAND	CITY OF RICHLAND
Potential Restoration Opportunities: Restore vegetation on shoreline slope near irrigation canal **Potential Protection Opportunities:** Protect existing low lying, riparian and shrub-steppe habitat	
Preliminary Shoreline Environment Designation Considerations: Parallel Natural below CID canal, Residential above canal where in SMA jurisdiction.	
PUBLIC ACCESS	
Existing Public Access: Reach 5 is designated as natural open space in the City's Comprehensive Plan (City of Richland 2008), though not mapped in the draft parks plan with a particular facility name. A soft surface trail exists along this reach (City of Richland 2012).	
Existing Public Access Goals: See general City goals regarding a connected open space plan described in Reach 1 and stewardship of sensitive areas and public recreation in Reach 4.	
Identified Public Access Improvements: None	
CUMULATIVE IMPACT CONSIDERATIONS	
Watershed level: The SMP has limited influence on Yakima River operations by the U.S. Bureau of Reclamation and irrigation districts, and upriver degradation of water quality conditions. Richland's focus should be on preventing further degradation of Lower Yakima conditions. **Reach level:** • Water quality impacts from herbicide and fertilizer run-off into agriculture canals • Impacts from recreation use along the shoreline • Other impacts from non-native predation (domestic pets, smallmouth bass, and pike	

RICHLAND	CITY OF RICHLAND
REACH 6	Reach Length: 5.07 mile
Shoreline Jurisdiction: 392.84 acres	

Source:https://www.bing.com/maps/

Description: The shoreline within this reach extends along the right bank of the Yakima River from the I-182 Yakima River bridge through the SR 240 bridge and to the eastern city limits, including Bateman and other smaller islands

Subreaches (SR), see Figure:

SR A: Extends approximately 2.7 miles from the I-182 bridge to the 240 bridge

SR B: Extends approximately 0.2 miles across the SR 240 bridge

SR C: Extends approximately 1.5 miles to the east of the SR 240 bridge

PHYSICAL CHARACTERISTICS

Ownership: Reach 6 is federally owned by the U.S. Army Corps of Engineers with some areas leased to the City; some private ownership in SR 6C.

Existing Land Cover/Development:

SRs A and B: Public lands and open space with no significant development other than the I-182 crossing.

SR C: Public open space directly neighboring medium to high density commercial, residential, waterfront, and research park developments to the south

Land Use/Current SMP:

SR A:

Current SMP Environment Designation: Conservancy

Current Zoning: Natural open space (floodplain area)

Adjacent Zoning: Benton County – Residential

City of Richland: Single-family residential

Current Land Use: Natural open space (east of residential area on View Drive, east of Columbia Canal)

Single-family residential (along View Drive and east of Columbia Canal)

Water-dependent Uses: None

RICHLAND	CITY OF RICHLAND

Water-related Uses: None

Non-water related Uses: Single-family residential

Future Land Use: No change from the current pattern of use is projected for residential areas

There is no potential for water-oriented use on private upland parcels due to the intervening open space. Non-motorized recreation use will continue on open space lands.

SR B:

Current SMP Environment Designation: Conservancy, except for islands, which are Natural

Current Zoning: Natural open space (floodplain area)

Adjacent Zoning: Benton County – Residential

City of Richland: Single-family residential

Current Land Use: Natural open space (east of residential area on View Drive, east of Columbia Canal)

Single-family residential (along View Drive and east of Columbia Canal)

Water-dependent Uses: None

Water-related Uses: None

Non-water related Uses: Single-family residential

Future Land Use: No change from the current pattern of use is projected for residential areas

There is no potential for water-oriented use on private upland parcels due to the intervening open space. Non-motorized recreation use will continue on open space lands.

SR C

Current SMP Environment Designation: Urban, except for Bateman Island, which is Conservancy

Current Zoning: Natural open space (floodplain area)

Adjacent Zoning: Commercial

Waterfront

Current Land Use: Public open space

Single-family residential (south of Columbia Canal)

Vacant commercial (south of Columbia Canal)

Water-dependent Uses: None

Water-related Uses: Parks provide opportunities for water enjoyment

Non-water related Uses: All existing uses except park

Future Land Use: There is little potential for water-oriented use on private upland parcels

Major Infrastructure: Public water access, public water system, informal trails along the shoreline, Columbia Canal irrigation channel, Columbia Park Trail, Wye Park, Connection to the Bateman Island, Columbia Park West

RICHLAND	CITY OF RICHLAND

Geomorphic Character: Reach 6 extends along the south bank (right bank) to the confluence of the Yakima River with the Columbia River. The channel is low gradient and generally widens towards the confluence with the Columbia River. The Highway 240 crossing is located near the confluence with the Columbia River. This meandering channel is confined by roads to a greater extent than Reach 4, but still shows historical channel movement (in comparison to the 1954 aerial photographs). Geologic features are mostly flood and alluvial deposits with soils consisting of loamy fine sand and a small region confined by basalt bedrock.

Hardened banks: Raised bank along the river on the east of SR 240 crossing, armoring in Columbia Point Marina Park and along some portion of Columbia Park Trail.

Flooding and Geological Hazards: Small parts of this reach are mapped in the FEMA High Risk Flood Areas, and it contains mostly freshwater forested/shrub wetlands—wetlands increase as this reach nears the confluence of the Columbia and Yakima rivers. Flooding risks in this area are moderate because of active historical channel movement and expansive OHWM area. The geologic features of flood deposits show that this area has a history of flooding.

Channel Migration Zone: Reach 6 is located along the right bank of the Yakima River and extends from the I-182 Bridge to the Columbia River. Infrastructure defining the location of the CMZ includes the I-182 bridge crossing at the upstream extent and a railroad and SR 240 bridge crossings. In the upstream extent, the CMZ follows the high, steep bank. Downstream of the high bank, the floodplain widens and the CMZ follows the setback along Columbia River Trail to the railroad and SR 240 bridge crossings. Downstream of SR 240, the CMZ follows a setback levee along the right bank. Downstream of the levee, the CMZ widens as the floodplain widens at the mouth of the Columbia River.

REACH CHARACTERIZATION AND ANALYSIS

Water Quantity and Sediment: Water quantity is influenced by releases from Yakima Project reservoirs, irrigation diversions, and irrigation return flow; and from the Columbia River McNary Pool, as this reach includes the Yakima River delta. The major surface water inputs in this reach include the City's wastewater treatment plant discharge. Badger Mountain Irrigation District also diverts water in this reach for agriculture and landscape irrigation purposes.

Water Quality: There are water quality listings for Dieldrin, dissolved oxygen, pH, DDT, endosulfan, and temperature. Ecology remarks that the reach returned to Category 5 from 4A in 2005 because the Lower Yakima pesticides total maximum daily load (TMDL) targets are for chronic aquatic life criteria and not the more stringent human health criteria (Ecology 2008). Additionally, WWTP discharges in this reach may impact water quality for a short time downstream until it completely mixes with the Yakima River and Columbia River. Nearby impervious surfaces from roads, residential roofs, and industrial activities may contribute stormwater runoff in SR C.

Habitat Characteristics and PHS Species Presence:

No threatened or endangered terrestrial species present in the immediate vicinity.

The water area of the Yakima River supports migratory waterfowl as a resting and feeding area. Some nesting may occur.

RICHLAND	CITY OF RICHLAND

SR A: A range of opportunities are provided along the shoreline for species with lifecycle stages related to water in extensive floodplains area. Portions of the floodplain are likely to be particularly productive because of a slough separating a large part of the floodplain from the bank. The upstream portion consists of an island separated from the bank by a slough. This slough, together with a steep bank and the canal reduces human disturbance in the upstream 1,000 feet of the corridor. This area primarily provides productive floodplain and wetland habitat for small resident species of reptiles, amphibians, and small mammals, particularly those with lifecycle stages dependent on water.

Adjacent to the residential area for about 1,500 feet along View Drive, the riparian area narrows due to the steep bank with corresponding reduction in habitat value, which is further reduced by proximity impacts such as noise and light and likely predation by domestic animals.

The portion adjacent to the Columbia Canal, a distance of about 4,000 feet, features a steep bank between the water's edge and the canal that provides a very narrow band of riparian vegetation and limited potential for wildlife movement.

SR B: This subreach includes the Riverview Preserve, a 268-acre floodplain area extending about 6,500 feet along the river that is maintained by the Corps of Engineers. This is part of the larger Yakima Delta, but is isolated by a railroad and the SR 240 corridor.

This extent to which this area functions as part of the larger delta is dependent on movement corridors both upstream and downstream. Movement downstream is largely constrained by the existing Yakima River bridge.

The level of human activity from trail systems through the area is relatively limited. However, proximity impacts from highways on the margin of the area produces substantial proximity impacts such as noise and light and likely limits areas near these facilities to less sensitive species. Mortality for animals attempting to cross the highway may be substantial along SR 240.

SR C: This subreach includes the Yakima Delta stretching from SR 240 to the city limits. The margins of the shoreline include about 4,500 feet of levee, and high bank steep slope. This reach includes the 160-acre Bateman Island and several hundred acres of delta deposits. The land uses along the shoreline provide little habitat value. The delta area as a whole vides a wide variety of riparian/wetland and upland vegetation in a large contiguous area with limited human disturbance and has the potential for providing a range of lifecycle functions for a wide range of species.

The National Wetland Inventory (NWI) shows patches of riparian wetlands in the eastern half of SR A and western half of SR B, as the shoreline becomes the Yakima Delta. The shoreline of SR C is developed and hardened, with roads adjacent to the shore. Patches of wetlands occur on the islands and outcroppings of the Yakima Delta. The confluence area wetland habitats are important staging and acclimatization zones for migrating salmonids.

Several fish species populate the lower Yakima River in this reach. Salmonid fish include steelhead and spring and fall Chinook salmon. Coho salmon were historically present here, and a coho reintroduction program is currently underway in the Yakima Basin. Bull trout were historically present and abundant in upper tributaries of the Yakima Basin and may now occur in this reach in low numbers. Lamprey are present but have experienced population decline in recent years. Resident fish include small- and largemouth bass, northern pikeminnow, sculpin, mountain whitefish, white sturgeon, catfish, sucker, walleye, rainbow trout,

RICHLAND	CITY OF RICHLAND
chiselmouth, dace, common carp, and various minnow species. Limitations to aquatic habitat in this reach are the elevated water temperatures and low flow common to the lower Yakima River. Fish passage is impeded regionally by the presence of several dams.	
ECOLOGICAL FUNCTIONS ANALYSIS (BY SUBREACH)	
SUBREACH A	
Level of Existing Function: Functioning **Stressors:** Irrigation canal with access road, McNary pool effects **Potential Restoration Opportunities:** Evaluate vegetation on shoreline slope near irrigation canal, evaluate potential to further restore Yakima River delta natural processes currently constrained by SR 240 **Potential Protection Opportunities:** Protect existing low lying, riparian and shrub steppe habitat	
Preliminary Shoreline Environment Designation Considerations: Natural	
SUBREACH B	
Level of Existing Function: Functioning **Stressors:** SR 240, McNary pool, recreation use **Potential Restoration Opportunities:** Remove invasive species and restore with native vegetation **Potential Protection Opportunities:** Manage recreation activities to maintain function	
Preliminary Shoreline Environment Designation Considerations: Conservancy	
SUBREACH C	
Level of Existing Function: Functioning **Stressors:** Trail, hardened shoreline along levee, over-water structures at marina, and irrigated lawn area at parks, parking, boat launch **Potential Restoration Opportunities:** Evaluate potential benefits from breaching portions of causeway, emphasize shoreline public access, and demonstrate appropriate native landscaping as part of Columbia Park West Master Plan and Hanford Reach Interpretive Center development. Remove invasive species and restore with native vegetation on Bateman Island and other applicable areas. **Potential Protection Opportunities:** BMPs for irrigated landscaping within developed parks	
Preliminary Shoreline Environment Designation Considerations: Natural waterward of levee/steep slope, Waterward landward of levee/Road, small area of Recreation	

RICHLAND	CITY OF RICHLAND
PUBLIC ACCESS	
Existing Public Access: This area includes (City of Richland 2012): • Portions of the Riverview Natural Preserve and Columbia Park Trail (SRs A and B) • Bateman Island Natural Open Space (SR C) • Wye Neighborhood Park (SR C) • Columbia Park Trail and Columbia Park West (SR C) with boat launches, docks, water moorage facilities, trails, picnic facilities, and others	
Existing Public Access Goals: See general City goal regarding a connected open space plan described in Reach 1 and stewardship of sensitive areas and public recreation in Reach 4.	
Identified Public Access Improvements: A Master Plan was adopted in 2010 for Columbia Park West.	
CUMULATIVE IMPACT CONSIDERATIONS	
Watershed level: The SMP has limited influence on Yakima River operations by the U.S. Bureau of Reclamation and irrigation districts, and associated upriver degradation of water quality conditions; and on U.S. Army Corps of Engineers McNary Dam operations. Richland's focus should be on preventing further degradation of Lower Yakima and Columbia River conditions. **Reach level:** • Impacts from recreation use and recreation development along the shoreline • Water quality impacts from impervious surface runoff from transportation facilities • Other impacts from non-native predation (domestic pets, smallmouth bass, and pike minnow)	

RICHLAND	**CITY OF RICHLAND**
REACH 7	Reach Length: 2.51 mile (excluding islands)
Shoreline Jurisdiction: 79.60 acres (excluding islands)	

Source:https://fortress.wa.gov/ecy/coastalatlas/UICoastalAtlas/Tools/ShorePhotos.aspx

Description: The shoreline within this reach extends about 8,000 feet along the right bank of the Columbia River from the north Urban Growth Area boundary to the City limits at Horn Rapids Road. The reach includes largely U.S. Department of Energy (DOE) land and includes portions of Wooded Island, Susan Island, and Barb Island in the Columbia River.

Subreaches (SR), see Figure:

SR A: Extends approximately 0.8 miles from the UGA Boundary

SR B: Extends approximately 0.7 miles just east of Apple Street

SR C: Extends approximately 0.8 miles to the southern extent of the UGA Boundary

SR D: Includes the islands

PHYSICAL CHARACTERISTICS

Ownership: City of Richland

Existing Land Cover/Development: Open space

Land Use:

SRs A through C:

Current SMP Environment Designation: Urban

Current Zoning: Zoning not established for this area

Current Land Use Land Use: Vacant (DOE)

RICHLAND	CITY OF RICHLAND
Water-dependent Uses: None Water-related Uses: None Non-water related Uses: Federal research and development laboratory Future Land Use: No change from the current pattern of use is projected in the near future The Richland Comprehensive Plan designates the area for a mix of developed and natural open space, commercial, residential, business research park and industrial There is potential for a variety of water-oriented use if this area is made available for non-federal use *SRs D through F—Columbia River Islands:* Current SMP Environment Designation: Natural Current Zoning: Natural open space (floodplain area) Adjacent Zoning: Current Land Use: Open space – National Wildlife Refuge Water-dependent Uses: None Water-related Uses: None Non-water related Uses: None Future Land Use: Federal Wildlife Refuge open space.	
Major Infrastructure: Railroad nearby.	
Geomorphic Character: Reach 7 includes the east bank (right bank) and associated bars along the Columbia River (upstream of the City of Richland limits). In this reach, the Columbia River is a straight, incised, single-thread channel. The geologic units are primarily flood deposits on the east bank while alluvial deposits make up the mid-channel unvegetated bars. The soils along the shoreline are made up of loamy sand and fine sandy loam. Hardened banks: No significant armoring was noted during inspection of aerial photography.	
Flooding and Geological Hazards: The mid- to channel islands are mapped in FEMA High Risk Flood Areas, but the bank is stable and unlikely to be susceptible to flood risks in its current form.	
Channel Migration Zone: Per Ecology, a CMZ delineation is not necessary for the Columbia River.	
REACH CHARACTERIZATION AND ANALYSIS	
Water Quantity and Sediment: Water quantity is dependent on Columbia River (specifically Priest Rapids Dam) operations. There are no major surface water inputs or outputs in this reach.	
Water Quality: Impervious roads and buildings within the adjacent Hanford Nuclear Reservation may contribute stormwater runoff in SRs A, B, and C.	

RICHLAND	CITY OF RICHLAND

Habitat Characteristics and PHS Species Presence:

No threatened or endangered terrestrial species present in the immediate vicinity.

The water area of the Columbia River supports migratory waterfowl as a resting and feeding area. Some nesting may occur. The Columbia River islands provide a breeding area for long billed curlew and a variety of gulls and a resting area with limited nesting for great blue heron and great egret.

DOE land and the Hanford National Monument to the north provides an area of about 600 square miles relatively undisturbed habitat for upland species and about 45 miles or riparian habitat along the Columbia River. There are currently few barriers for wildlife movement between Reach 7 and this wildlife resource to the north.

SRs A through D provide a limited range of habitat for species with lifecycle stages related to water due to the narrow band of riparian vegetation.

SRs D through F include the Columbia River islands, which are part of the McNary National Wildlife Refuge and provide a variety of riparian and upland habitat. In addition, the area provides resting area for a variety for a variety of waterfowl including by mallards, Canada geese, and other waterfowl for wintering, and the island habitats for nesting for great blue herons, great egrets, black-crowned night-herons, double crested cormorants, and American white pelicans, as well as several species of gulls. The islands are isolated by water from most human disturbance but are subject to proximity impacts such as noise and light or glare.

There are no wetlands in this reach. The shoreline is natural except for the area adjacent to the Department of Defense facility, where roads and parking areas encroach on the shore.

Many fish species populate the Columbia River in this reach. Salmonid fish include Chinook (spring, summer, and fall), coho, chum (fall), pink, and sockeye salmon, as well as bull trout/Dolly Varden and steelhead and rainbow trout. Coho salmon were historically present here, and a coho reintroduction program is currently underway in the nearby Yakima Basin. Lamprey are present but have experienced population decline in recent years. Other native fish species that can be found in the Columbia River near Richland include white sturgeon, bridgelip and mountain suckers, mottled sculpin, chiselmouth, redside shiner, peamouth, northern pikeminnow. Invasive species include bluegill, bass, crappie, shad, carp, channel catfish, perch, and walleye.

Shellfish in the Columbia River near Richland include the Columbia River limpet, the Columbia River spire snail, and the California floater.

ECOLOGICAL FUNCTIONS ANALYSIS (BY SUBREACH)

SUBREACH A

Level of Existing Function: Functioning

Stressors: None

Potential Restoration Opportunities: None

Potential Protection Opportunities: Protect shrub steppe and riparian vegetation

RICHLAND	CITY OF RICHLAND
Preliminary Shoreline Environment Designation Considerations: Conservancy	
SUBREACH B	
Level of Existing Function: Partially functioning **Stressors:** Hanford 300 Area development and remedial activities, water intake or outfall structure just off of Riverview Loop **Potential Restoration Opportunities:** Reduce unnecessary impervious surface and re-vegetate with native species **Potential Protection Opportunities:** Protect shrub steppe and riparian vegetation	
Preliminary Shoreline Environment Designation Considerations: Conservancy	
SUBREACH C	
Level of Existing Function: Functioning **Stressors:** McNary pool effects (limited) **Potential Restoration Opportunities:** None **Potential Protection Opportunities:** Protect shrub steppe and riparian vegetation	
Preliminary Shoreline Environment Designation Considerations: Conservancy	
SUBREACH D	
Level of Existing Function: Functioning **Stressors:** McNary pool effects (limited) **Potential Restoration Opportunities:** None **Potential Protection Opportunities:** Protect shrub-steppe and riparian vegetation	
Preliminary Shoreline Environment Designation Considerations: Columbia River Islands Natural	
PUBLIC ACCESS	
Existing Public Access: None. About 55 acres are in federal ownership (Benton County 2012).	
Existing Public Access Goals: The Richland Comprehensive Plan includes a general objective to:	

RICHLAND	CITY OF RICHLAND
• Provide public access and use of the Columbia River and Yakima River shoreline in a manner that accommodates various uses but limits their impact on the natural environment	
Identified Public Access Improvements: None	
CUMULATIVE IMPACT CONSIDERATIONS	
Watershed level: The SMP has limited influence on the Columbia River, and upriver water quality conditions. Richland's focus should be on preventing further degradation of Columbia River conditions. **Reach level:** • Structural effects on habitat through informal road fragmentation within the uplands	

RICHLAND	**CITY OF RICHLAND**
REACH 8	Reach Length: 2.07 mile (excluding islands)
Shoreline Jurisdiction: 80.35 acres (excluding islands)	

Source:https://fortress.wa.gov/ecy/coastalatlas/UICoastalAtlas/Tools/ShorePhotos.aspx

Description: The shoreline within this reach extends about 8,000 feet along the right bank of the Columbia River from the current City limits at Horn Rapids Road to Spring Road. The reach includes shoreline areas managed as part of the McNary Dam project and private and public uplands.

Subreaches (SR), see Figure:

SR A: Extends approximately 0.2 miles from the northern extent of the City limits to 11th Street

SR B: Extends approximately 0.3 miles to Battelle Boulevard

SR C: Extends approximately 0.7 miles to the WSU campus (east of University Drive)

SR D: Extends approximately 0.3 miles to Sprout Street

SR E: Extends approximately 0.6 miles to Spring Street

SR F: Includes the island

PHYSICAL CHARACTERISTICS

Ownership: U.S. Army Corps of Engineers, City of Richland, and private

Existing Land Cover/Development: Vacant, public access trail, public institution and residential

RICHLAND	CITY OF RICHLAND

Land Use/Current SMP:

Current SMP Environment Designation: Urban (SRs A – E) and Natural (island – SR F)

SR A includes about 1,000 feet at the northern end of the reach.

Current Zoning: Parks and public facilities

Current Land Use: Developed open space

Water-dependent Uses: Two barge unloading facilities

Water-related Uses: None

Non-water-related Uses: None

Future Land Use: Water-oriented development is likely in the near future.

The Richland Comprehensive Plan designates the area as waterfront and provides for future development of a variety of water-oriented uses such as marinas, boat docks, resorts, mixed commercial/residential development, hotels, motels, and offices along the Columbia River shoreline. The intent is to bring significant development to the Columbia riverfront that is consistent with the City's vision and that incorporates public access recreational features and attractive and high quality development

SR B extends along about 1,000 feet of the shoreline.

Current Zoning: Natural open space

Adjacent Zoning: Business park

Current Land Use: Natural open space

Water-dependent Uses: None

Water-related Uses: None

Non-water-related Uses: None

Future Land Use: Water-oriented development is likely in the near future.

The Richland Comprehensive Plan designates the area as waterfront and provides for future development of a variety of water-oriented uses such as marinas, boat docks, resorts, mixed commercial/residential development, hotels, motels, and offices along the Columbia River shoreline. The intent is to bring significant development to the Columbia riverfront that is consistent with the City's vision and that incorporates public access recreational features and attractive and high quality development

SR C extends along about 1,800 feet of the shoreline with a recently approved multi-family development**.**

Current Zoning: Natural open space (floodplain area)

Adjacent Zoning: Waterfront

Current Land Use: Natural open space

Water-related Uses: None

Non-water-related Uses: None

Future Land Use: Water-oriented development is likely in the near future in addition to build-out of the current residential development.

RICHLAND	CITY OF RICHLAND
The Richland comprehensive plan designates the area as waterfront and provides for future development of a variety of water-oriented uses consistent with the City's vision and that incorporates public access recreational features and attractive and high quality development **SR D** extends along about 2,800 feet of the shoreline and is largely vacant. Current Zoning: Waterfront Adjacent Zoning: Waterfront Current Land Use: Developed open space Water-related Uses: None Non-water-related Uses: None Future Land Use: Water-oriented development is likely in the near future in addition to build-out of the current residential development. The Richland Comprehensive Plan designates the area as waterfront provides for future development of a variety of water-oriented uses consistent with the City's vision and that incorporates public access recreational features and attractive and high-quality development. **SR E** extends along about 8,800 feet of the shoreline and consists of the WSU Tri-Cities Campus. Current Zoning: Park and public facilities Adjacent Zoning: Park and public facilities Current Land Use: Washington State University Tri-Cities Campus consisting of a variety of buildings and cultivated open space Water-related Uses: None Non-water-related Uses: None Future Land Use: Additional education campus is likely. Water-oriented use is not likely, but water enjoyment opportunities likely will be provided. **SR F** includes a Columbia River island, which is part of the McNary National Wildlife Refuge and provides a variety of riparian and upland habitat.	
Major Infrastructure: Public water access, public water system, railroad, and Port of Benton nearby	
Geomorphic Character: Reach 8 includes the east bank (right bank) and a large mostly unvegetated island along the Columbia River downstream of the City of Richland boundary. This straight, incised, single-thread channel is confined by urban/agricultural infrastructure. The soils are primarily flood deposits on the east bank while alluvial deposits make up the mid channel island. The soils on the shoreline are made up of loamy sand and fine sandy loam. Hardened banks: Reminiscent water exhaust structures from the Hanford site; the water intake facility and barge landing, and a few docks near the residential area south of the WSU campus	
Flooding and Geological Hazards: The mid- to channel islands are mapped in FEMA High Risk Flood Areas, but the bank is stable and unlikely to be susceptible to flood risks in its current form.	

RICHLAND	CITY OF RICHLAND

Channel Migration Zone: Per Ecology, a CMZ delineation is not necessary for the Columbia River.

REACH CHARACTERIZATION AND ANALYSIS

Water Quantity and Sediment: Water quantity is dependent on Columbia River (specifically Priest Rapids Dam) operations. There are no major surface water inputs or outputs in this reach.

Water Quality: Nearby impervious surfaces from roads and residential roofs may contribute stormwater runoff in SRs A through E.

Habitat Characteristics and PHS Species Presence:

No threatened or endangered terrestrial species present in the immediate vicinity.

The water area of the Columbia River supports migratory waterfowl as a resting and feeding area. Some nesting may occur. The Columbia River islands also provide a breeding area for long billed curlew and a variety of gulls, as well as a resting area with limited nesting for great blue heron and great egret.

SRs A through E provide a limited range of habitat for species with lifecycle stages related to water due to the narrow band of riparian vegetation. Wildlife movement is accommodated along the shoreline. There is little potential for connection to upland habitat although fragmented upland habitat is present in vacant lands to the west that have largely been disturbed in the past and have limited habitat value.

SR F includes a Columbia River island, which is part of the McNary National Wildlife Refuge and provides a variety of riparian and upland habitat. In addition, the area provides resting area for a variety for a variety of waterfowl. The islands are isolated by water from most human disturbance but are subject to proximity impacts such as noise and light/glare.

The National Wetland Inventory (NWI) has identified wetlands in SR B, SR C, and the north half of SR D. The shorelines are all modified; SR A has a boat launch, SR E has several boat docks and piers, and there is a road along the shore of the remaining reaches.

Many fish species populate the Columbia River in this reach. Salmonid fish include Chinook (spring, summer, and fall), coho, chum (fall), pink, and sockeye salmon, as well as bull trout/Dolly Varden and steelhead and rainbow trout. Coho salmon were historically present here, and a coho reintroduction program is currently underway in the nearby Yakima Basin. Lamprey are present but have experienced population decline in recent years. Other native fish species that can be found in the Columbia River near Richland include white sturgeon, bridgelip and mountain suckers, mottled sculpin, chiselmouth, redside shiner, peamouth, and northern pikeminnow. Invasive species include bluegill, bass, crappie, shad, carp, channel catfish, perch, and walleye.

Shellfish in the Columbia River near Richland include the Columbia River limpet, the Columbia River spire snail, and the California floater.

ECOLOGICAL FUNCTIONS ANALYSIS (BY SUBREACH)

SUBREACH A

Level of Existing Function: Partially functioning

RICHLAND	CITY OF RICHLAND
Stressors: Water intake facilities and barge slip (dredged), armoring, legacy utility structures (maybe monitoring wells) informal recreation trails and water access, recreation use **Potential Stressors**: Within waterfront developed land use designations, will have development pressure **Potential Restoration Opportunities:** Increase density of riparian buffer, consider soft bank stabilization methods **Potential Protection Opportunities:** Limit public access to designated trails, protect shrub steppe consistent with WDFW guidelines	
Preliminary Shoreline Environment Designation Considerations: Conservancy	
SUBREACH B	
Level of Existing Function: Partially functioning **Stressors:** Paved bike path, residential development with roads, **Potential Stressors**: Waterfront development and associated recreational activity increases **Potential Restoration Opportunities:** Replace invasive riparian species with native, maximize taller riparian vegetation near shoreline to maintain views of river, infill with smaller trees and shrubs at top of bank **Potential Protection Opportunities:** Consider low irrigation/xeriscape options for landscaping on public and private parcels	
Preliminary Shoreline Environment Designation Considerations: Parallel Recreation and Waterfront	
SUBREACH C	
Level of Existing Function: Functioning **Stressors:** Paved bike path and desire paths lower on bank, non-native riparian species, limited industrial development but outside of the shoreline jurisdiction **Potential Restoration Opportunities:** Replace invasive riparian species with native **Potential Protection Opportunities:** Limit access to designated trails; consider reconnecting to larger regional trail to discourage desire trails	
Preliminary Shoreline Environment Designation Considerations: Parallel Recreation and Waterfront	
SUBREACH D	
Level of Existing Function: Partially functioning (fully functioning at northern end) **Stressors:** Irrigated landscape associated with University, trails, water intake, and armoring **Potential Stressors**: Development pressure from institution	

RICHLAND	CITY OF RICHLAND
Potential Restoration Opportunities: Replace invasive riparian species with native and improve riparian vegetation in degraded or impacted areas, replace armor with soft shoreline techniques **Potential Protection Opportunities:** Protect existing mature riparian vegetation	
Preliminary Shoreline Environment Designation Considerations: Parallel Recreation and Waterfront	
SUBREACH E	
Level of Existing Function: Partially functioning **Stressors:** Private docks with trails down steep shoreline to them, impacted riparian buffer **Potential Stressors**: Single-family residential allows for 5 dwelling units per acre **Potential Restoration Opportunities:** Improve woody, drought tolerant vegetation at shoreline **Potential Protection Opportunities:** Protect existing native riparian vegetation, consider consolidating pathways to shoreline docks	
Preliminary Shoreline Environment Designation Considerations: Parallel Recreation and Residential	
SUBREACH F	
Level of Existing Function: Functioning **Stressors:** Passive recreation **Potential Restoration Opportunities:** None **Potential Protection Opportunities:** Protection from recreation uses that limit ecological function or cultural resources	
Preliminary Shoreline Environment Designation Considerations: Columbia River Islands Natural	
PUBLIC ACCESS	
Existing Public Access: **SR A:** Riverfront Trail **SR B:** Riverfront Trail **SR C:** Riverfront Trail **SR D:** WSU Tri Cities College Campus with Riverfront Trail **SR E:** None – there is an on-street trail route just outside shoreline jurisdiction **SR F:** McNary National Wildlife Refuge	
Existing Public Access Goals:	

RICHLAND	CITY OF RICHLAND

The Richland Comprehensive Plan includes a general objective to:

- Provide public access and use of the Columbia River and Yakima River shoreline in a manner that accommodates various uses but limits their impact on the natural environment

Also, the Comprehensive Land Use Plan does indicate an intent for passive or active open space as follows:

- **SR A:** Designated as developed open space in Comprehensive Land Use Plan
- **SR B:** Portion designated as natural open space in Comprehensive Land Use Plan and a portion as waterfront, which is described as integrating recreation with other commercial, cultural, office, recreational and residential uses
- **SR C:** Designated a portion as natural open space and developed open space in Comprehensive Plan
- **SR D:** Designated as developed open space in Comprehensive Plan
- **SR E:** A narrow strip of land on the shoreline is designated as natural open space adjacent to residential uses
- **SR F:** The island is designated as natural open space

Identified Public Access Improvements:

None

CUMULATIVE IMPACT CONSIDERATIONS

Watershed level: The SMP has limited influence on Columbia River McNary dam operations by the U.S. Army Corps of Engineers, and upriver water quality conditions. Richland's focus should be on preventing further degradation of Columbia River conditions.

Reach level:

- Structural effects on habitat through road fragmentation and development within the uplands
- Impacts from recreation use along the shoreline

RICHLAND	CITY OF RICHLAND
REACH 9	Reach Length: 2.75 mile (excluding islands)
Shoreline Jurisdiction: 90.79 acres (excluding islands)	

Source:https://fortress.wa.gov/ecy/coastalatlas/UICoastalAtlas/Tools/ShorePhotos.aspx

Description: The shoreline within this reach extends along the right bank of the Columbia River from Spring Road to Howard Amon Park.

Subreaches (SR), see Figure:

SR A: Extends approximately 0.5 miles from Leslie Groves Park

SR B: Extends approximately 0.6 miles from Snyder to Park Street

SR C: Extends approximately 0.5 miles from Leslie Groves Park

SR D: Extends approximately 0.8 miles from Symons Street

SRs E & F: Includes the two islands, respectively.

PHYSICAL CHARACTERISTICS

Ownership: U.S. Army Corps of Engineers, City of Richland, and private

RICHLAND	CITY OF RICHLAND
Existing Land Cover/Development: Vacant, public, and residential	
Land Use/Current SMP: ***SR A****:* Current SMP Environment Designation: Urban Current Zoning: Natural open space Current Land Use: Open space Adjacent Land Use: Residential Water-dependent Uses: None Water-related Uses: None; open space provides for water enjoyment Non-water-related Uses: None Future Land Use: Natural open space is likely to be maintained. ***SR B****:* Current SMP Environment Designation: Urban Current Zoning: Park and public facility Adjacent Zoning: Park and public facility and residential Current Land Use: Water treatment facility intake • Boat launch ramp and parking • Public park (Leslie Grove Park) Water-dependent Uses: Water treatment facility intake • Boat Launch Ramp and parking Water-related Uses: Water enjoyment use of parks and open space Non-water-related Uses: Park recreation and passive use Future Land Use: There is unlikely to be any change in the existing park and open space. ***SR C****:* Current SMP Environment Designation: Urban Current Zoning: Natural open space/park and public facility Adjacent Zoning: Residential Current Land Use: Public park (Leslie Grove Park) Adjacent Land Use: Residential Water-dependent Uses: None Water-related Uses: Water enjoyment use of parks and open space Non-water-related Uses: Park recreation and passive use Future Land Use: There is unlikely to be any change in the existing park and open space ***SR D****:* Current SMP Environment Designation: Urban	

RICHLAND	CITY OF RICHLAND
Current Zoning: Park and public facility Adjacent Zoning: Residential Current Land Use: Public park Adjacent Land Use: Residential Water-dependent Uses: None Water-related Uses: Water enjoyment use of trail along levee Non-water-related Uses: Residential Future Land Use: There is unlikely to be any change in the existing park and open space or adjacent residential use **SRs E and F** include Seagull and Nelson islands in the Columbia River, which are part of the McNary National Wildlife Refuge. Current SMP Environment Designation: Natural	
Major Infrastructure: Public water access, public water system, Leslie Groves Park, Hains Avenue Levee Park	
Geomorphic Character: Reach 9 includes the east bank (right bank) and associated un-vegetated islands along the Columbia River. In this reach, the river is a mostly straight, incised, single-thread channel that is confined by urban/agricultural infrastructure. The geologic units are primarily flood deposits on the east bank while alluvial deposits make up the mid-channel islands (bars). The soils on the shoreline are made up of loamy sand and fine sandy loam. Hardened banks: Levees, docks and boat ramp structures along the shoreline and hardening around the water intake structure.	
Flooding and Geological Hazards: The mid- to channel islands are mapped in FEMA High Risk Flood Areas, but the bank is stable and unlikely to be susceptible to flood risks in its current form.	
Channel Migration Zone: Per Ecology, a CMZ delineation is not necessary for the Columbia River.	
REACH CHARACTERIZATION AND ANALYSIS	
Water Quantity and Sediment: Water quantity is dependent on Columbia River (specifically Priest Rapids Dam) operations. There are no major surface water inputs in this reach. The City has a water intake in SR A.	
Water Quality: Nearby impervious surfaces from roads and residential roofs may contribute stormwater runoff in SRs A, B, C, and D.	
Habitat Characteristics and PHS Species Presence: No threatened or endangered terrestrial species present in the immediate vicinity. The water area of the Columbia River supports migratory waterfowl as a resting and feeding area. Some nesting may occur. The Columbia River islands also provide a breeding area for long billed curlew and a variety of gulls, as well as a resting area with limited nesting for great blue heron and great egret. **SRs A through D** include Seagull and Nelson islands in the Columbia River, which provide a limited range of	

RICHLAND	CITY OF RICHLAND
habitat for species with lifecycle stages related to water due to the narrow band of riparian vegetation. Wildlife movement is accommodated along the shoreline. There is little potential for connection to upland habitat although fragmented upland habitat is present in vacant lands to the west that have largely been disturbed in the past and have limited habitat value. The National Wetland Inventory (NWI) has identified wetlands in SR A and SR C. The shorelines are all modified and have adjacent residential development as well as a riverfront trail. Many fish species populate the Columbia River in this reach. Salmonid fish include Chinook (spring, summer, and fall), coho, chum (fall), pink, and sockeye salmon, as well as bull trout/Dolly Varden and steelhead and rainbow trout. Coho salmon were historically present here, and there is currently a coho reintroduction program underway in the nearby Yakima Basin. Lamprey are present but have experienced population decline in recent years. Other native fish species that can be found in the Columbia River near Richland include white sturgeon, bridgelip and mountain suckers, mottled sculpin, chiselmouth, redside shiner, peamouth, and northern pikeminnow. Invasive species include bluegill, bass, crappie, shad, carp, channel catfish, perch, and walleye. Shellfish in the Columbia River near Richland include the Columbia River limpet, the Columbia River spire snail, and the California floater.
ECOLOGICAL FUNCTIONS ANALYSIS (BY SUBREACH)	
SUBREACH A	
Level of Existing Function: Functioning **Stressors:** Passive recreation, designated public access point **Potential Restoration Opportunities:** Manage for invasive species in riparian buffer **Potential Protection Opportunities:** Manage activity within designated trails	
Preliminary Shoreline Environment Designation Considerations: Parallel Recreation and Residential	
SUBREACH B	
Level of Existing Function: Impaired **Stressors:** Water intake structure, boat ramp, armored, parking lot, irrigated and sprayed turf grass at top of bank, recreation use **Potential Restoration Opportunities:** Look for opportunities for xeriscape landscaping, BMP for landscape maintenance, invasive species removal along shoreline **Potential Protection Opportunities:** Protect existing native, mature riparian vegetation	
Preliminary Shoreline Environment Designation Considerations: Parallel Recreation and Residential	

RICHLAND	CITY OF RICHLAND
SUBREACH C	
Level of Existing Function: Partially functioning **Stressors:** Riparian vegetation bisected by multi-use trail **Potential Restoration Opportunities:** Improve riparian vegetation **Potential Protection Opportunities:** Protect existing native riparian vegetation	
Preliminary Shoreline Environment Designation Considerations: Parallel Recreation and Residential	
SUBREACH D	
Level of Existing Function: Impaired **Stressors:** Levee (with clearing of riparian vegetation for management), path, armored shoreline, invasive species **Potential Restoration Opportunities:** Evaluate restoration options in front of levee **Potential Protection Opportunities:** Preserve existing vegetation, minimize removal for levee management	
Preliminary Shoreline Environment Designation Considerations: Parallel Recreation and Residential	
SUBREACH E	
Level of Existing Function: Functioning **Stressors:** Passive recreation **Potential Restoration Opportunities:** None **Potential Protection Opportunities:** Protection from recreation uses that limit ecological function or cultural resources	
Preliminary Shoreline Environment Designation Considerations: Columbia River Islands Natural	
PUBLIC ACCESS	
Existing Public Access: Reach 9 contains the Riverfront Trail; Leslie Groves Park, with a wide variety of active waterfront facilities including docks and a launch (SRs A, B, and C); and Hains Avenue Levy Park (SR D). The river islands in SR E are mapped as natural open space on the Comprehensive Land Use Plan.	
Existing Public Access Goals: The Richland Comprehensive Plan includes a general objective to: • Provide public access and use of the Columbia River and Yakima River shoreline in a manner that accommodates various uses but limits their impact on the natural environment.	

RICHLAND	CITY OF RICHLAND
CUMULATIVE IMPACT CONSIDERATIONS	

Watershed level: The SMP has limited influence on Columbia River McNary dam operations by the Corps of Engineers, and upriver degradation of water quality conditions. Richland's focus should be on preventing further degradation of Columbia River conditions.

Reach level:

- Chemical contaminant impacts from recreation infrastructure and landscaping
- Structural effects on habitat through road fragmentation and overwater structures
- Shoreline hardening/stabilization through recreation development
- Existing levees to protect structures
- Other impacts including from recreation use

RICHLAND	CITY OF RICHLAND
REACH 10	Reach Length: 2.12 mile
Shoreline Jurisdiction: 67.72 acres	

Source:https://fortress.wa.gov/ecy/coastalatlas/UICoastalAtlas/Tools/ShorePhotos.aspx

Description: The shoreline within this reach extends about 2 miles along the right bank of the Columbia River from the north end of Howard Amon Park to the I-182 bridge. The reach includes shoreline areas managed by the City as park and open space, as well as residential and commercial uses, including a marina.

Subreaches (SR), see Figure:

SR A: Extends approximately 0.7 miles through Howard Amon Park

SR B: Extends approximately 0.7 miles from the south end of Howard Amon Park

SR C: Extends approximately 0.7 miles from ending at the I-182 bridge

PHYSICAL CHARACTERISTICS

Ownership: U.S. Army Corps of Engineers, City of Richland, and private

Existing Land Cover/Development: Public park, residential, and commercial

Land Use/Current SMP:

SR A includes about 3,500 feet of shoreline between the north end of Howard Amon Park to the Hampton Inn at about the alignment of Falley Street.

Current SMP Environment Designation: Urban

Current Zoning: Parks and public facilities

Current Shoreline Land Use: Boat Launch and associated parking

- Public Park

Adjacent Land Use: Commercial (largely behind existing levee or steep slope)

Water-dependent Uses: Boat launch

Water-related Uses: Open space provides for water enjoyment

Non-water-related Uses: Variety of non-water-related recreation

Future Land Use: Park is likely to be maintained

RICHLAND	CITY OF RICHLAND

SR B extends along about 3,000 feet of the shoreline from the Hampton Inn to the boundary of existing development at the Columbia Point Marina.

Current SMP Environment Designation: Urban

Current Zoning: Waterfront (Hampton Inn to Shilo Rivershore Inn)

- Park and public facility
- Multi-family
- Waterfront (Columbia Point Marina vicinity)
- Park and public facility

Adjacent Zoning: Same as shoreline zoning

Current Land Use: Waterfront zoning

- Hampton Inn
- Residential townhomes
- Vacant land
- Shilo Rivershore Inn
- Park and public facility zoning

Water-dependent Uses: None

Water-related Uses: Public trail along waterfront

Non-water-related Uses: Hotels

Future Land Use: There is limited private land available. The most likely site is redevelopment of the Shilo Rivershore Inn to multiple use.

SR C extends along about 4,000 feet of the shoreline from the boundary of existing development at the Columbia Point Marina area to the I-182 bridge.

Current SMP Environment Designation: Urban

Current Zoning: Multi-family

- Waterfront (Columbia Point Marina vicinity)
- Park and public facility (Columbia Point Marina Park)

Adjacent Zoning: Same as shoreline zoning

Current Land Use:

- Multi-family zoning – Multi-family development
- Waterfront zoning
- Multi-family development
- Restaurant
- Marina
- Park and public facility zoning

RICHLAND	CITY OF RICHLAND
• Marina • Boat launch ramp and parking • Public park (Columbia Point Marina Park) Water-dependent Uses: Boat launch ramp and parking Water-related Uses: Water enjoyment use of parks and open space Non-water related Uses: Hotels • Park recreation and passive use Future Land Use: There is limited private land available. No likely development sites in this subreach have been identified.	
Major Infrastructure: Public water access, public water system, Howard Amon Park, Columbia Point Marina Park, Columbia Point Golf Course, and I-182 and crossing	
Geomorphic Character: Reach 10 includes the south bank (right bank) of the Columbia River immediately upstream of the Interstate 182 Bridge (and the confluence with the Yakima River). This stable, incised, single-thread channel has low sinuosity and is confined by urban/agricultural infrastructure. It narrows from north to south. The soils consist primarily of loamy sand and fine sandy loam. Hardened banks: Docks, boat ramps and a breakwater in the marina facility.	
Flooding and Geological Hazards: None of this reach is mapped in the FEMA High Risk Flood Areas, and the bank is stable and unlikely to be susceptible to flood risks in its current form.	
Channel Migration Zone: Per Ecology, a CMZ delineation is not necessary for the Columbia River.	
REACH CHARACTERIZATION AND ANALYSIS	
Water Quantity and Sediment: Water quantity is dependent on Columbia River (specifically McNary Dam) operations. The mouth of the Yakima River is located at the downstream end of Reach 10C.	
Water Quality: Nearby impervious surfaces from roads and residential roofs may contribute stormwater runoff in Reach 10. Additionally, a golf course may contribute surface runoff in SR B, and a marina may impact water quality in SR C.	
Habitat Characteristics and PHS Species Presence: No threatened or endangered terrestrial species present in the immediate vicinity. The water area of the Columbia River supports migratory waterfowl as a resting and feeding area. Some nesting may occur. The Columbia River islands also provide a breeding area for long billed curlew and a variety of gulls, as well as a resting area with limited nesting for great blue heron and great egret. All reaches provide a limited range of habitat for species with lifecycle stages related to water due to the narrow band of riparian vegetation or the lack of vegetation. The high public pedestrian volumes on trails along the waterfront limit wildlife use to human tolerant species. Wildlife movement not likely to be accommodated along the shoreline except for species adept at swimming. There is little nearby upland habitat	

RICHLAND	CITY OF RICHLAND

in vacant lands or the golf course and therefore little opportunity for movement.

The National Wetland Inventory (NWI) has identified a small wetland in Reach 10B. The shorelines are all highly modified and include a marina, residential development, and the riverfront trail.

Many fish species populate the Columbia River in this reach. Salmonid fish include Chinook (spring, summer, and fall), coho, chum (fall), pink, and sockeye salmon, as well as bull trout/Dolly Varden and steelhead and rainbow trout. Coho salmon were historically present here, and a coho reintroduction program is currently underway in the nearby Yakima Basin. Lamprey are present but have experienced population decline in recent years. Other native fish species that can be found in the Columbia River near Richland include white sturgeon, bridgelip and mountain suckers, mottled sculpin, chiselmouth, redside shiner, peamouth, northern pikeminnow. Invasive species include bluegill, bass, crappie, shad, carp, channel catfish, perch, and walleye.

ECOLOGICAL FUNCTIONS ANALYSIS (BY SUBREACH)

SUBREACH A

Level of Existing Function: Impaired

Stressors: Levee (with clearing of riparian vegetation for management), path, armored shoreline, invasive species, boat launch, multiple over water structures and ramp, irrigated and sprayed turf grass, riparian vegetation lacking, recreation use, and paved areas near water including parking lot

Potential Restoration Opportunities: Consider options for soft shore armoring techniques to stabilize shoreline below lawn areas, increase riparian vegetation while still allowing for shoreline access and views, and BMPS for irrigated turfgrass areas to reduce pesticide runoff.

Potential Protection Opportunities: Manage shoreline access to allow for further riparian and soft shoreline enhancements

Preliminary Shoreline Environment Designation Considerations:

Recreation

SUBREACH B

Level of Existing Function: Functioning

Stressors: Armored groin protecting legacy boat ramp, multi use trail, limited riparian buffer in between development and water, invasive species (Russian-olive and milfoil), recreation use

Potential Stressors: Waterfront development and redevelopment

Potential Restoration Opportunities: Manage invasive species, evaluate restoring natural shoreline plan and cross section (consider groin and boat ramp area)

Potential Protection Opportunities: Protect native riparian vegetation

Preliminary Shoreline Environment Designation Considerations:

Waterfront

RICHLAND	CITY OF RICHLAND

SUBREACH C

Level of Existing Function: Impaired

Stressors: Marina with armored breakwater/multiple over water structures, private development near shoreline, multiuse trail, limited riparian vegetation particularly within marina, park with managed lawn, boat ramp, some invasive species (Russian-olive), bank erosion potentially from boat wake, and recreation use

Potential Stressors: Waterfront zoning allows for potential development. Multiple-family residential allows for 10 or more dwelling units per acre.

Potential Restoration Opportunities: Riparian planting with native species, evaluate soft shoreline around park; Marina park landscape maintenance BMPs

Potential Protection Opportunities: Protect existing native riparian plants

Preliminary Shoreline Environment Designation Considerations:

Waterfront

PUBLIC ACCESS

Existing Public Access:

Reach 10 includes several facilities with the Riverfront Trail as a connector:

- Howard Amon Park with a swim dock and boat launch as well as other active recreation facilities (SR A)
- Columbia Point Marina Park (SR C) including a boat launch and transient moorage
- The Columbia Point Golf Course is located outside of shoreline jurisdiction.

Existing Public Access Goals:

The Richland Comprehensive Plan includes a general objective to:

- Provide public access and use of the Columbia River and Yakima River shoreline in a manner that accommodates various uses but limits their impact on the natural environment

Identified Public Access Improvements:

The draft parks plan (City of Richland 2012) identifies an improvement by 2014 to Howard Amon Park:

- South Howard Amon Park shelter replacement

The Comprehensive Plan Capital Facilities Element also includes a couple of objectives regarding Howard Amon Park:

- Complete improvements to the Riverfront Trail as designated in the Howard Amon Master Plan and Callison Plan
- Complete reconstruction and enhancement of the Howard Amon Park parking lot and Lee Boulevard in accordance with the Howard Amon Park Master Plan

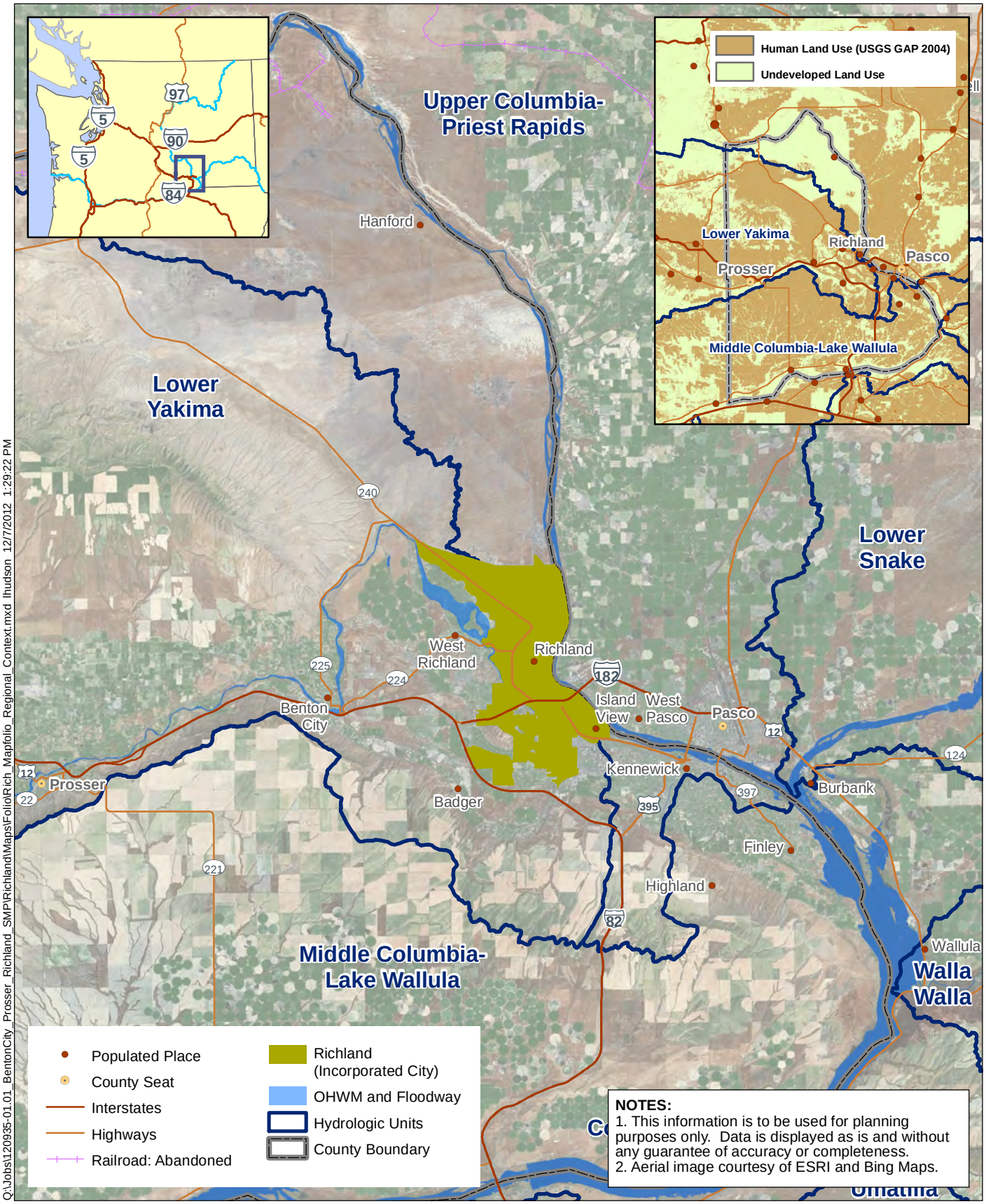
RICHLAND	CITY OF RICHLAND
CUMULATIVE IMPACT CONSIDERATIONS	

Watershed level: The SMP has limited influence on Columbia River McNary dam operations by the Corps of Engineers, and upriver degradation of water quality conditions. Richland's focus should be on preventing further degradation of Columbia River conditions.

Reach level:

- Impervious surfaces leading to habitat loss and potential runoff
- Vegetation alterations removing organic material and increasing soil erosion
- Chemical contaminant impacts from recreation infrastructure and development
- Structural effects on habitat through overwater structures
- Shoreline hardening/stabilization through recreation development

APPENDIX B
MAP FOLIO



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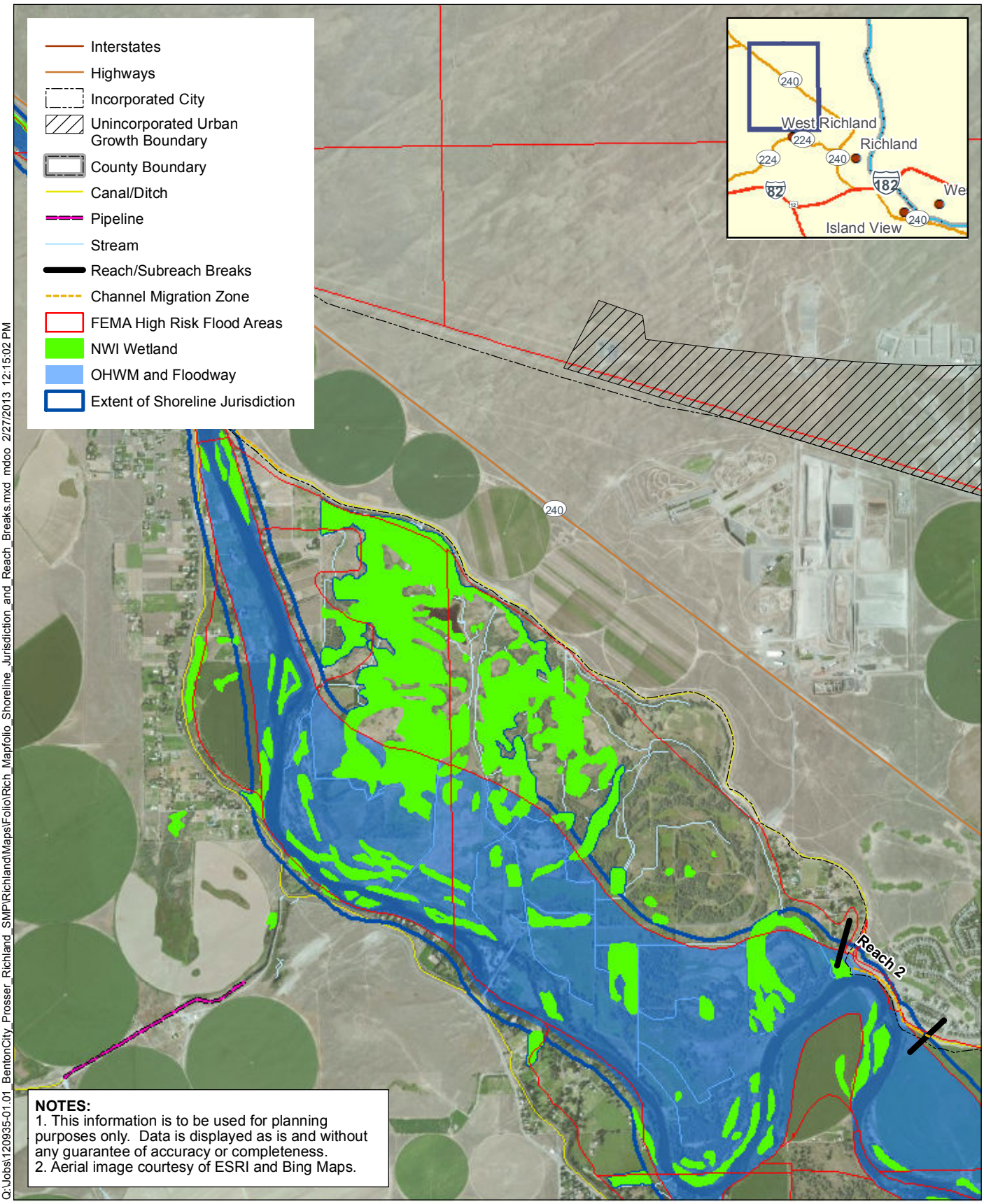
Map 1
Regional Context
Richland Shoreline Master Program
Richland, WA



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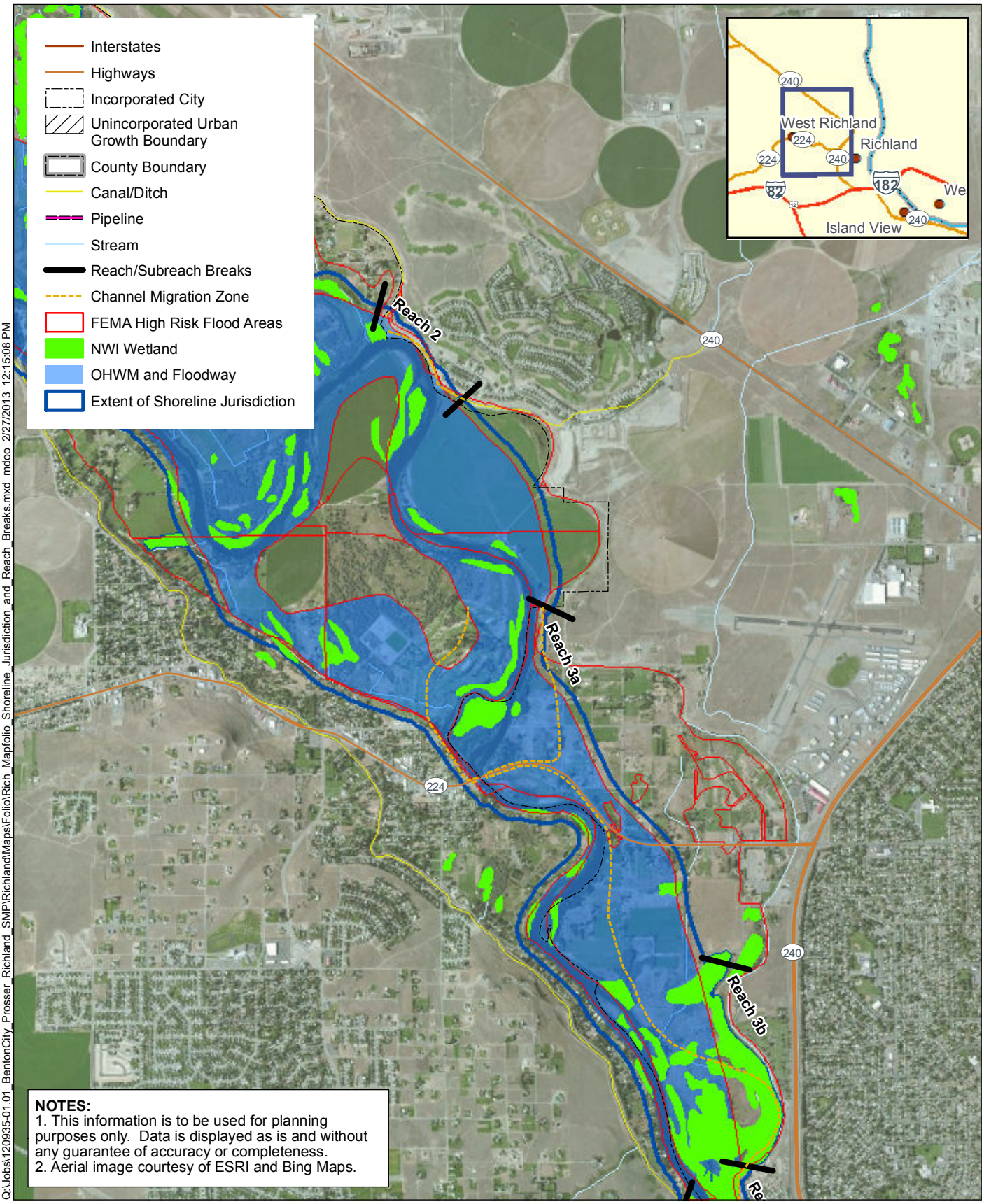
Map 2a
Shoreline Jurisdiction and Reaches
Richland Shoreline Master Program
Richland, WA



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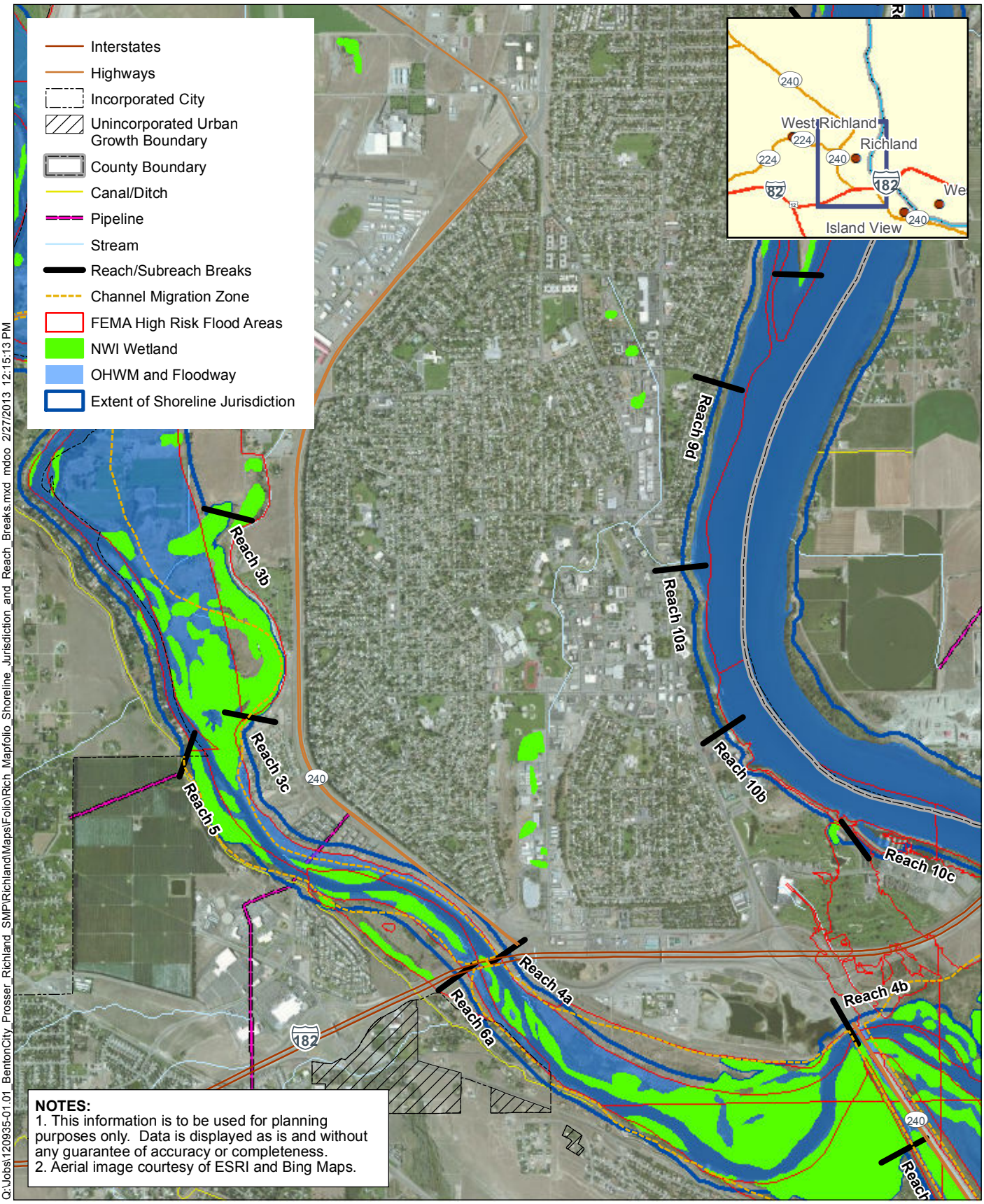
Map 2b
Shoreline Jurisdiction and Reaches
Richland Shoreline Master Program
Richland, WA



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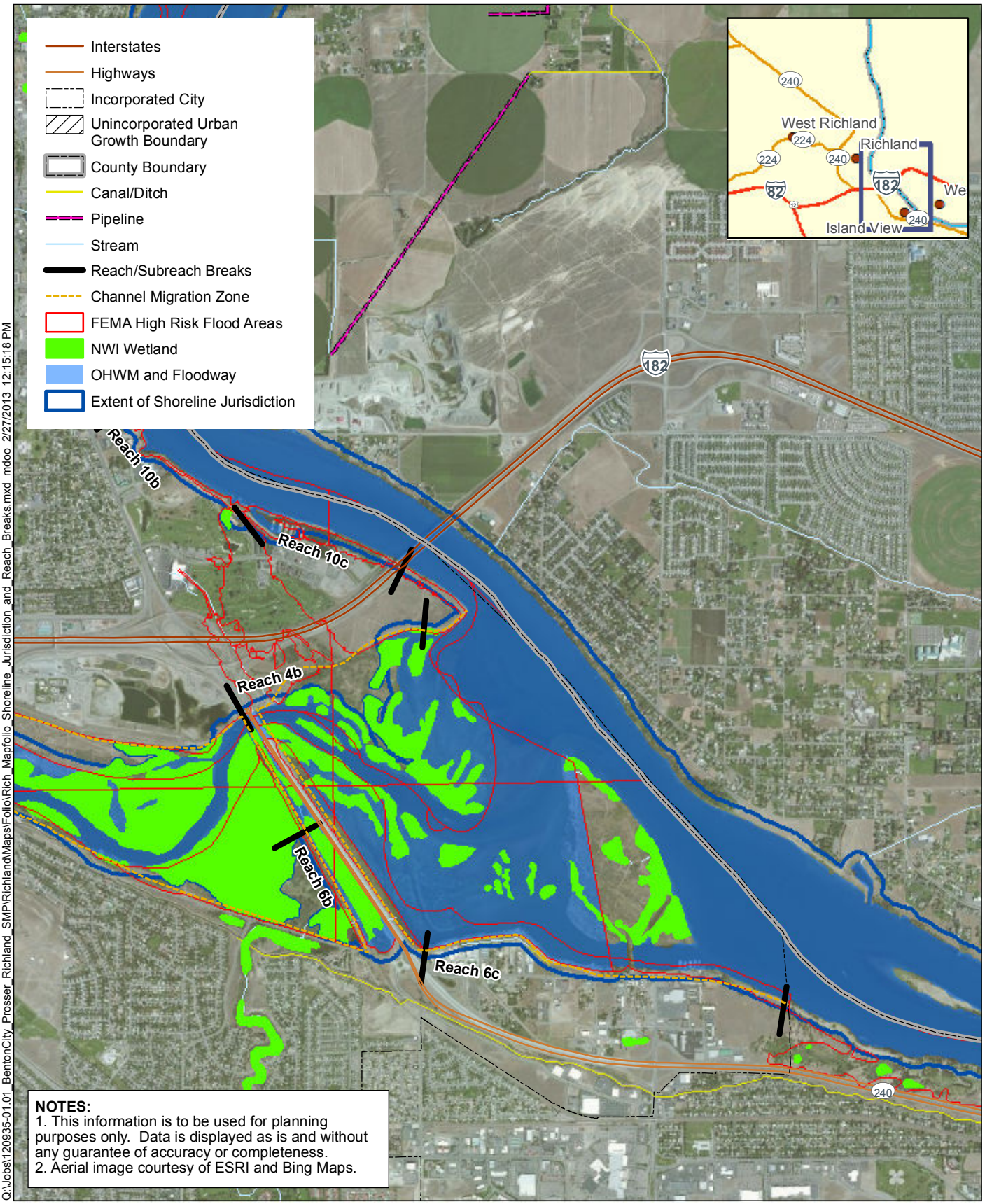
Map 2c
Shoreline Jurisdiction and Reaches
Richland Shoreline Master Program
Richland, WA



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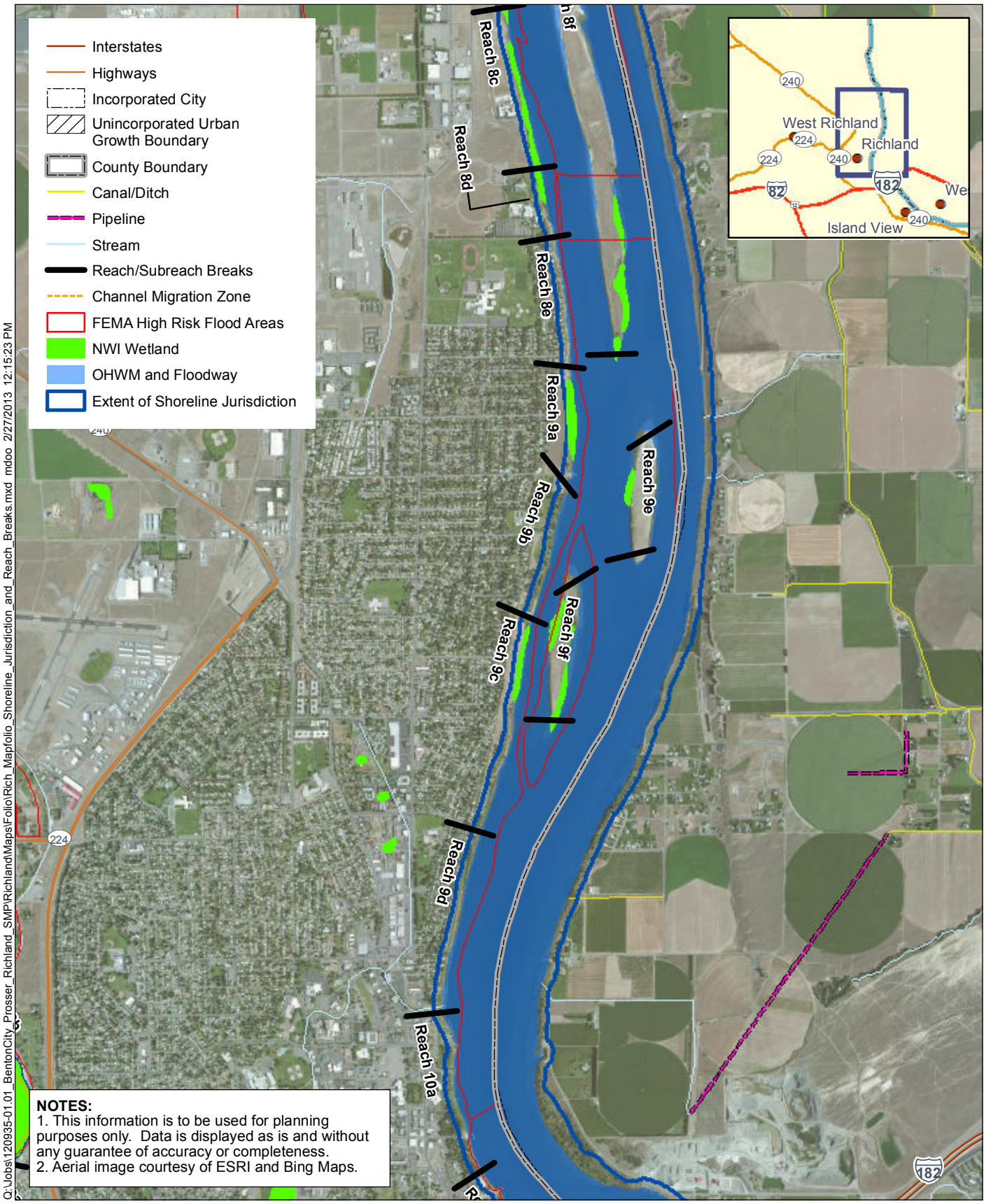
Map 2d
Shoreline Jurisdiction and Reaches
Richland Shoreline Master Program
Richland, WA



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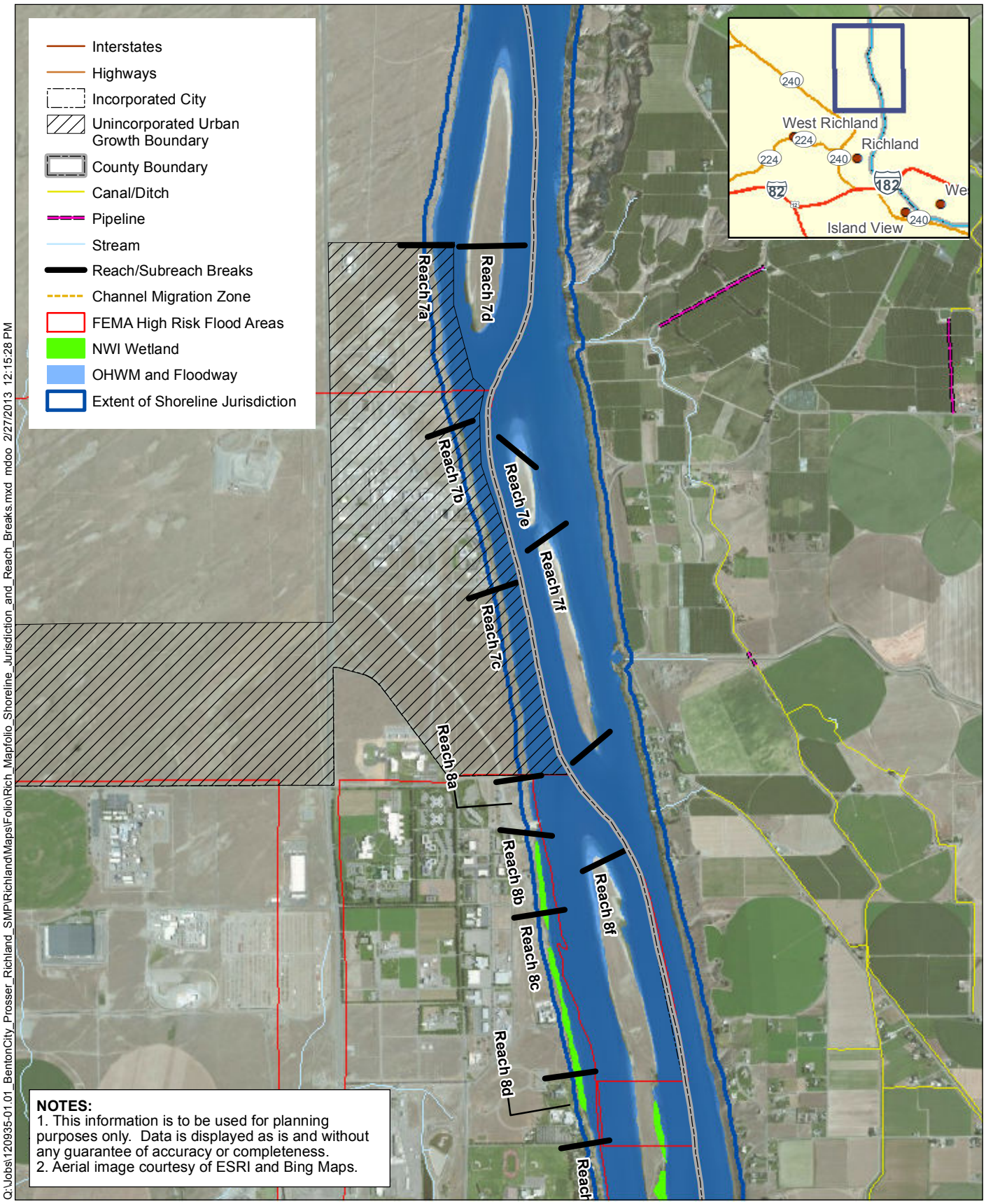
Map 2e
Shoreline Jurisdiction and Reaches
Richland Shoreline Master Program
Richland, WA



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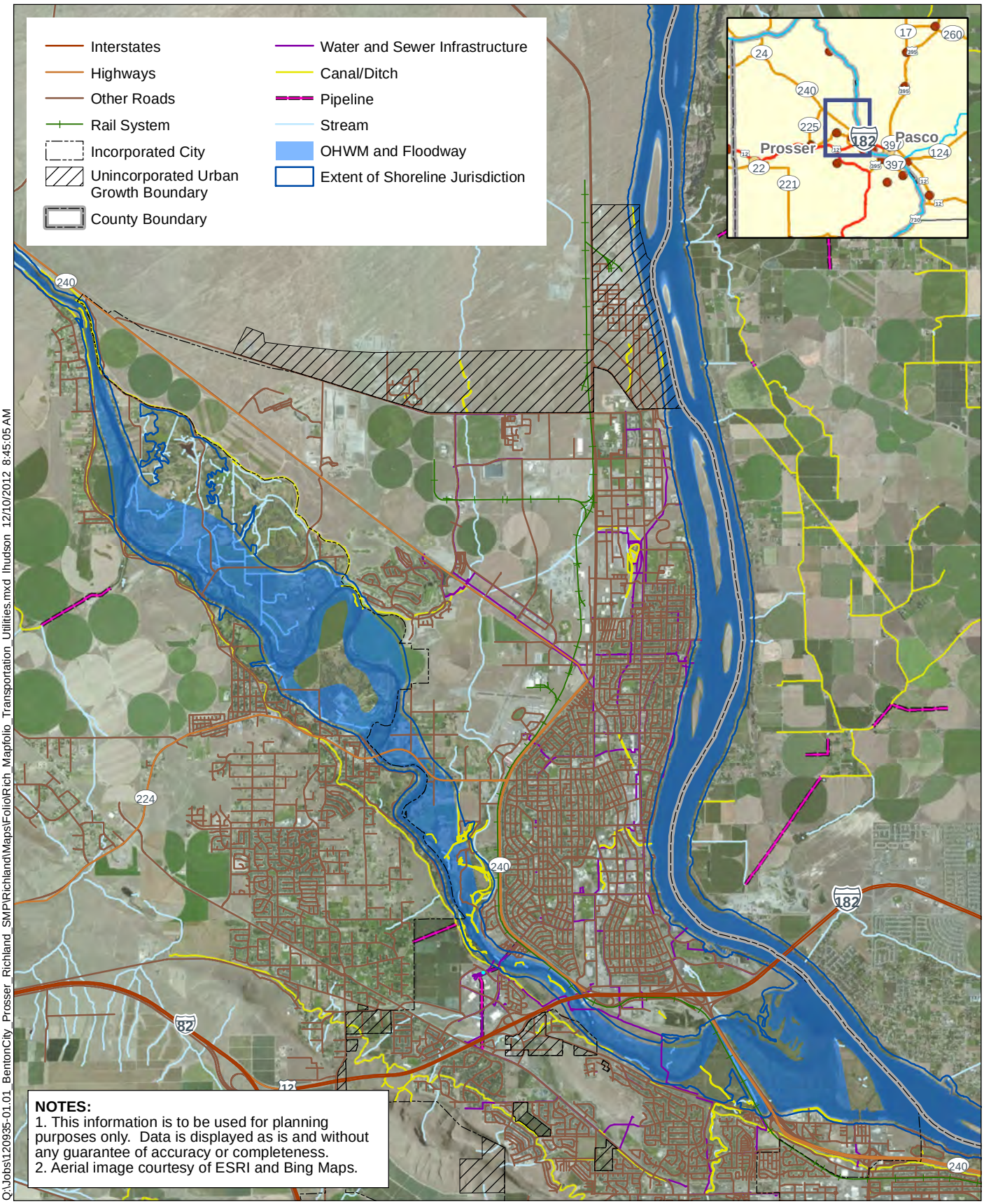
Map 2f
Shoreline Jurisdiction and Reaches
Richland Shoreline Master Program
Richland, WA



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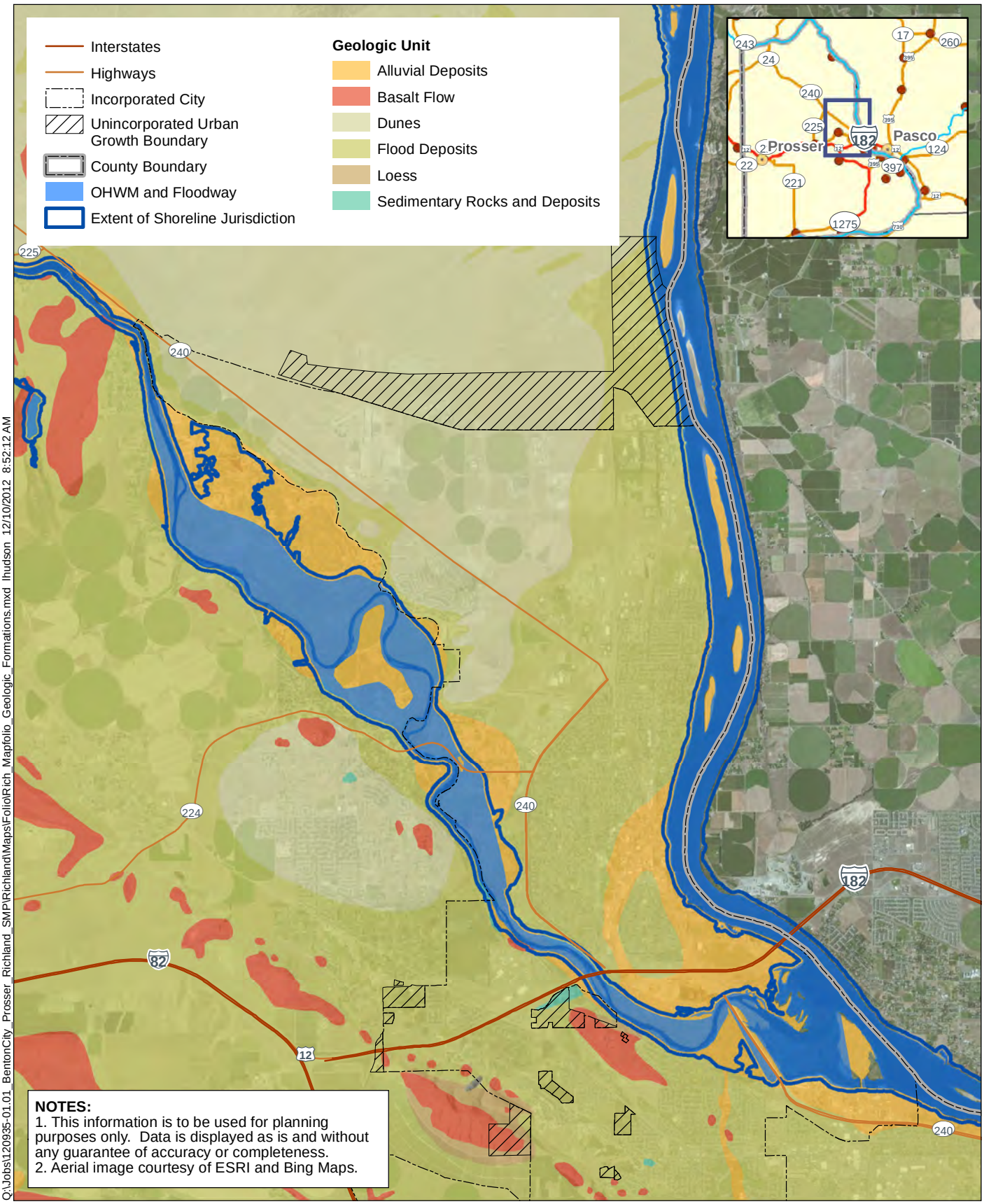
Map 3
Transportation and Utilities
Richland Shoreline Master Program
Richland, WA



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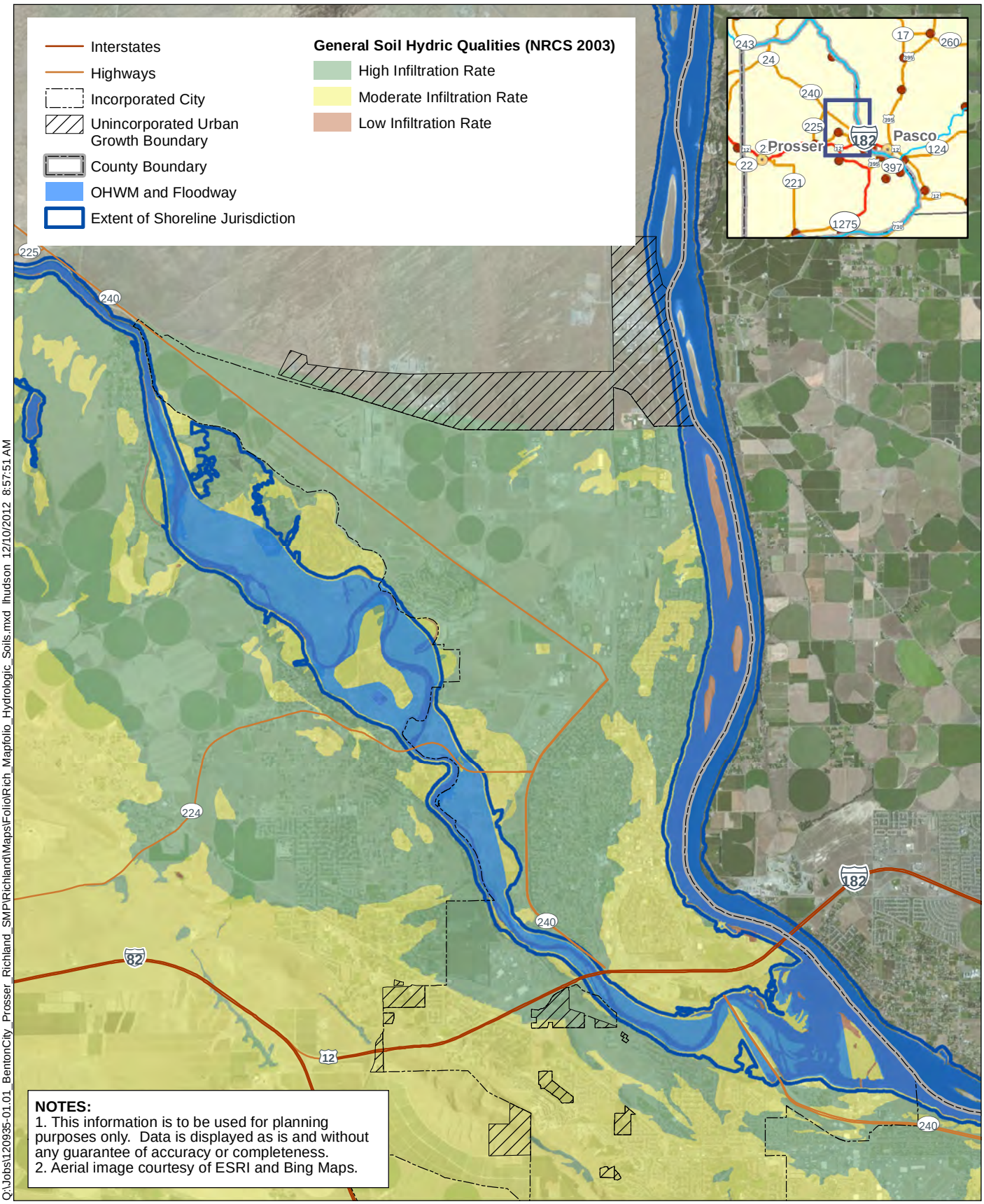
Map 4
Geologic Formations
Richland Shoreline Master Program
Richland, WA



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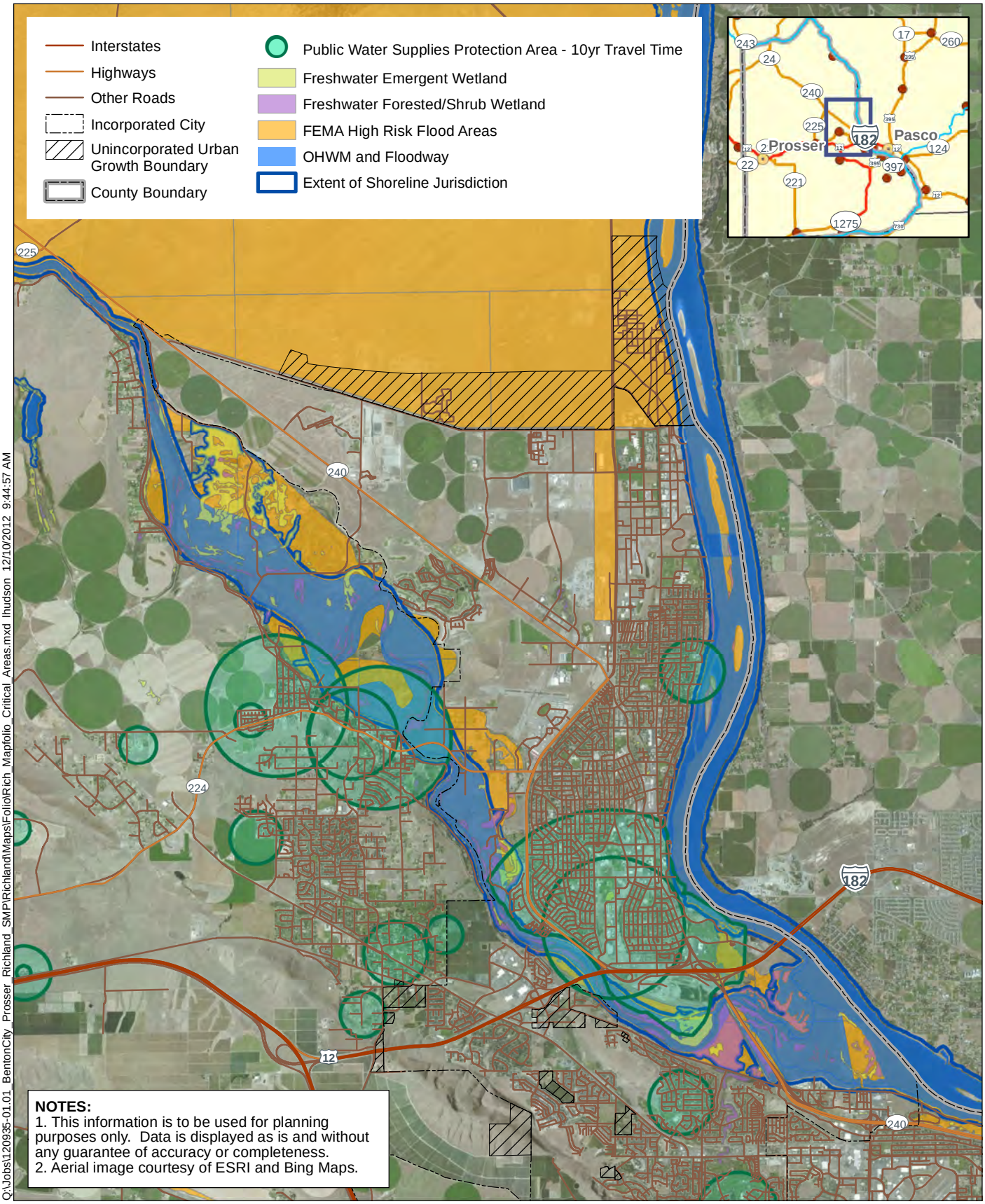
Map 5
Hydrologic Soils
Richland Shoreline Master Program
Richland, WA



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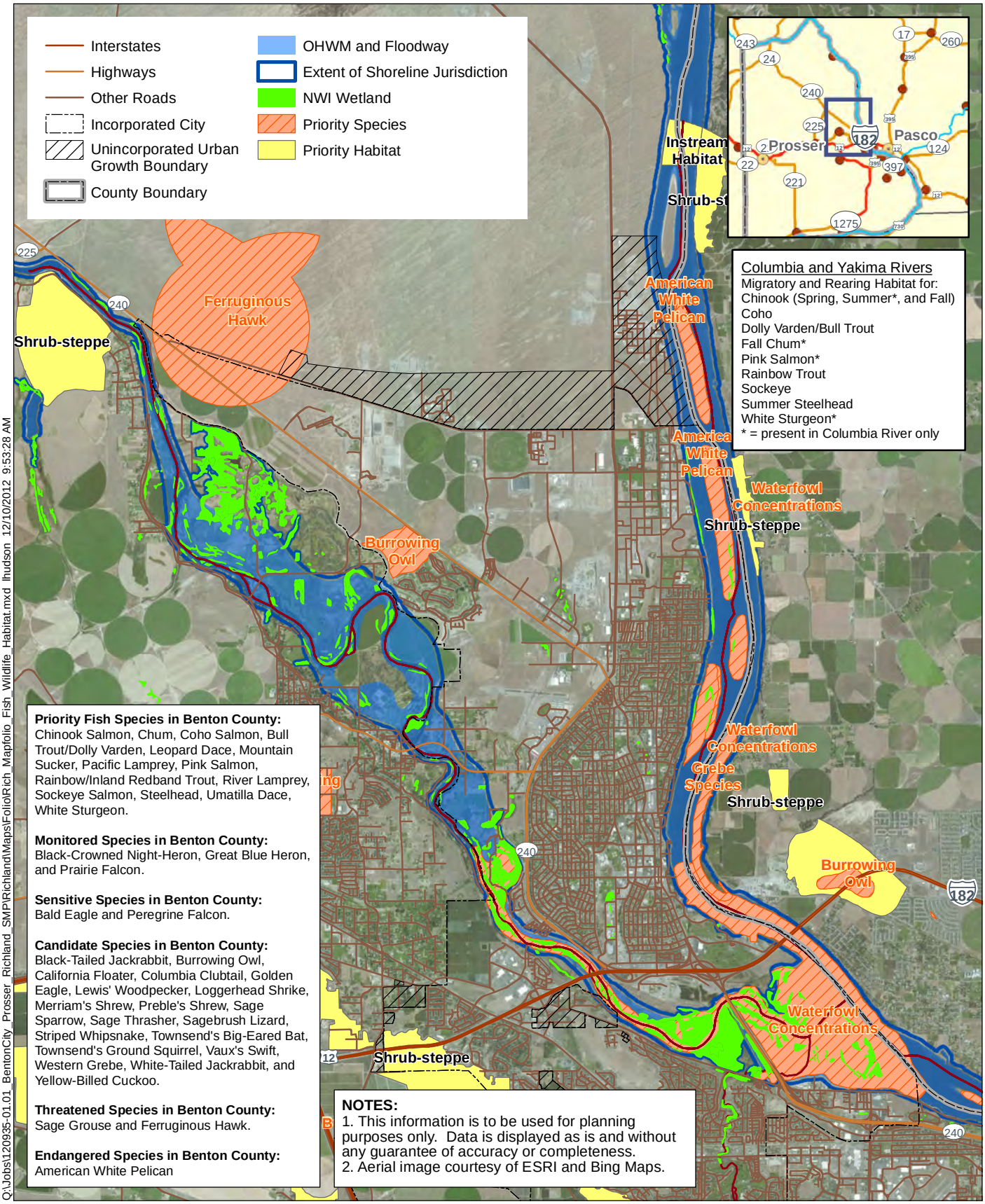
Map 6
Critical Areas
Richland Shoreline Master Program
Richland, WA



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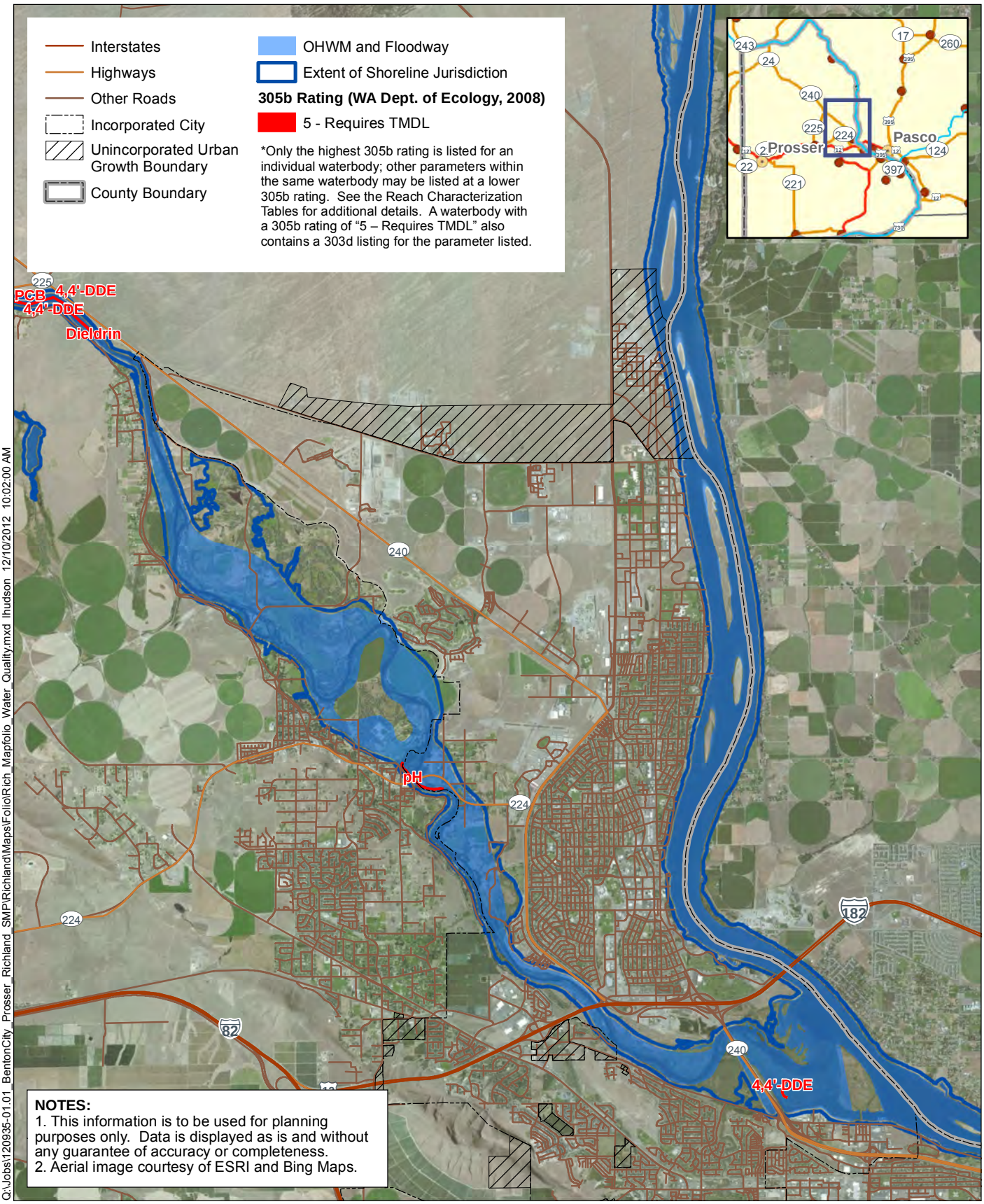
Map 7
Fish, Wildlife, and Habitat Areas
Richland Shoreline Master Program
Richland, WA



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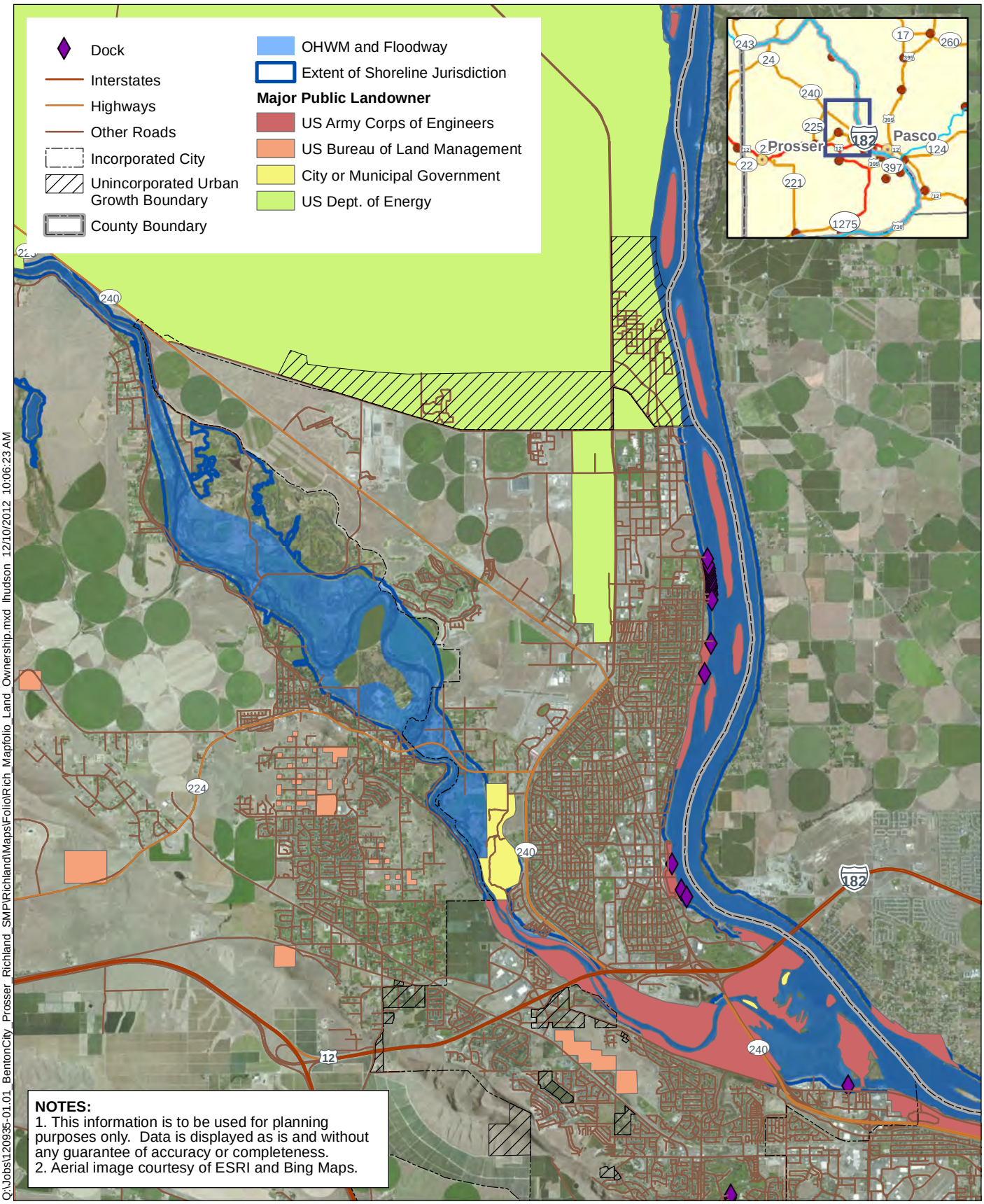
Map 8
Water Quality Assessment
Richland Shoreline Master Program
Richland, WA



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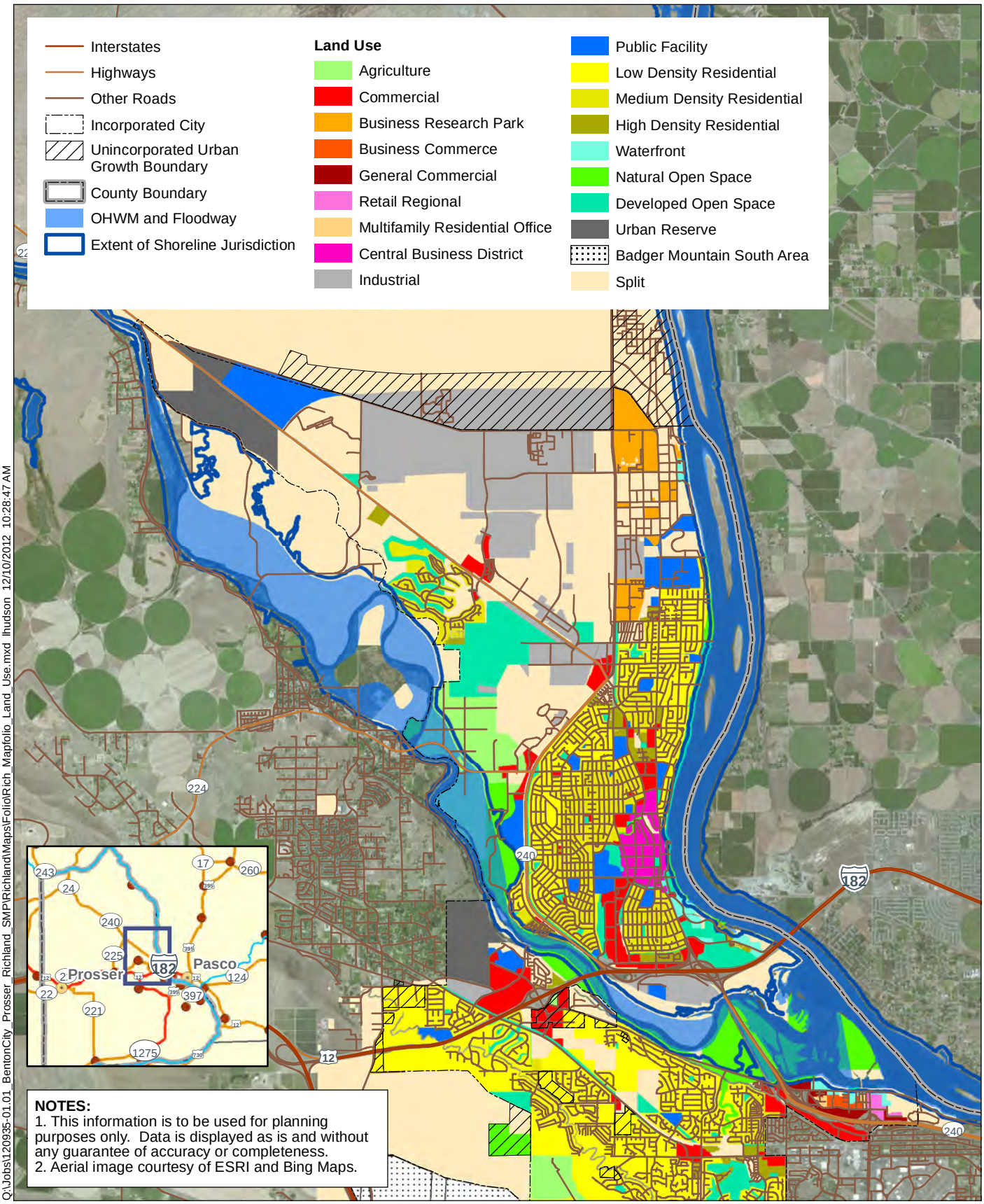
Map 9
Land Ownership
Richland Shoreline Master Program
Richland, WA



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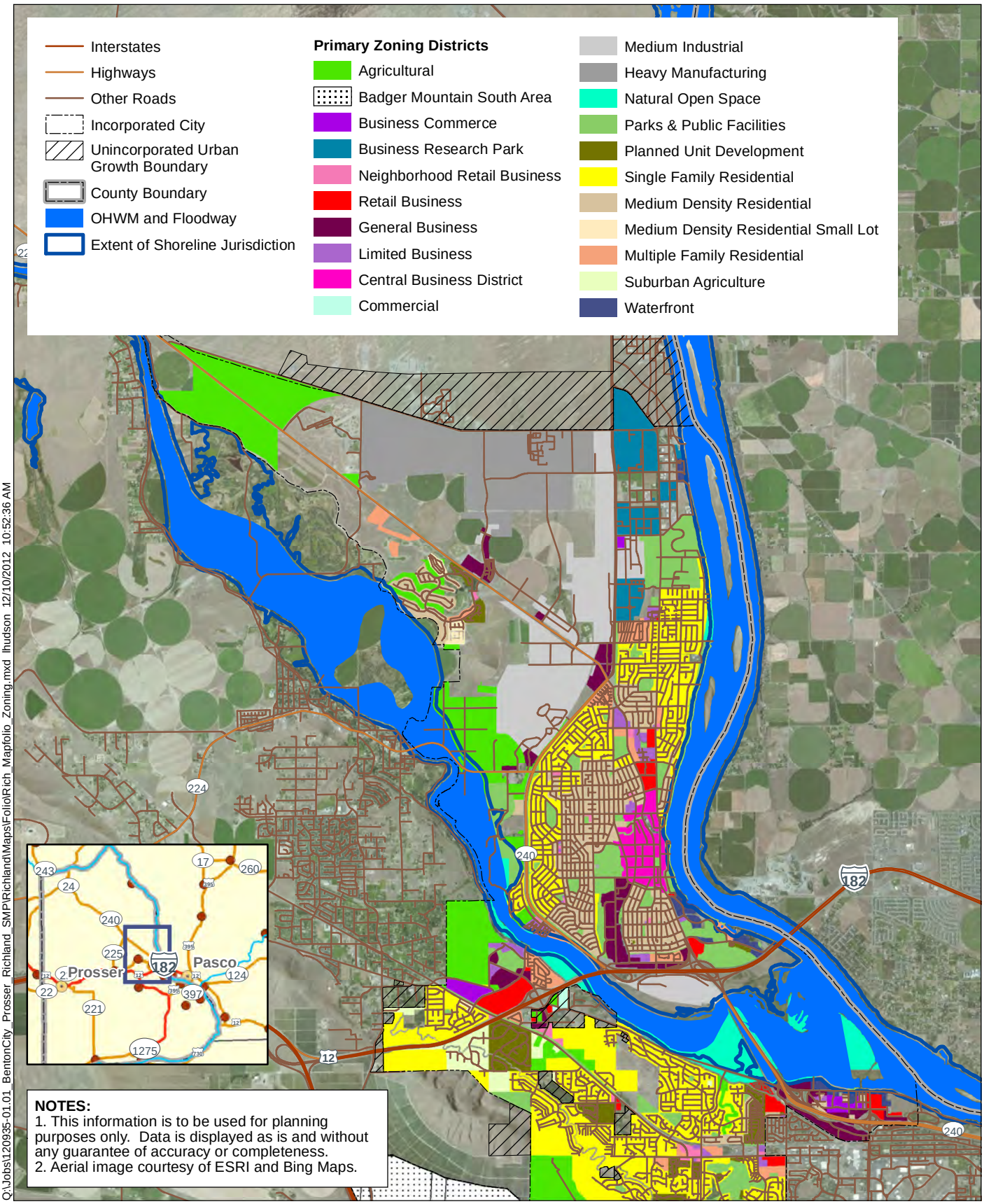
Map 10
Land Use
Richland Shoreline Master Program
Richland, WA



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Map 11
Zoning
Richland Shoreline Master Program
Richland, WA

CITY OF RICHLAND SMP UPDATE

Prepared for

City of Richland

Prepared by

Anchor QEA, LLC
8033 West Grandridge Boulevard, Suite A
Kennewick, Washington 99336

Prepared with assistance from

Berk Consulting, Inc.
Parametrix, Inc.

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February 2014

(Updated per public comments received at or associated with the January 2014 Planning Commission hearing, the SEPA review, and the February 12, 2014 Planning Commission workshop)

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City of Richland

Shoreline Master Program Update

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Section Six of Comprehensive Plan **2**

Shoreline Management **2**

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City of Richland

Shoreline Master Program Update

DRAFT January, 2014

This Draft Shoreline Master Program consists of three elements:

Section I Amendments to the City of Richland Comprehensive Plan

Section II Amendment of City of Richland Code, Title 26, Shoreline Management, which also includes adoption of Section 26.60, Sensitive Areas as part of the program

Section III Amendment of City of Richland Code, Title 23 Zoning RMC 19.20.010 Procedures for processing development permits, and RMC Chapter 23.66 Non-Conforming Uses. Changes from the existing code text are indicated in red underlined format for insertions and in ~~strikethrough~~ format for deletions.

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Section I Amendment of Comprehensive Plan

The City of Richland Comprehensive Plan is hereby amended to add a new section within the Land Use Element

Section Six of Comprehensive Plan

Shoreline Management

This section addresses goals and policies of the Shoreline Management Act of 1971 (Chapter 90.58 RCW); which was adopted by the voters of the state in recognition that the shorelines of the state are among the most valuable and fragile of its natural resources, that ever increasing pressures of additional uses are being placed on the shorelines necessitating increased coordination in the management and development of the shorelines, that coordinated planning is necessary in order to protect the public interest associated with the shorelines of the state while, at the same time, recognizing and protecting private property rights consistent with the public interest.

This local program is the product of a cooperative program of shoreline management between local government and the state. The City has prepared an Inventory and Analysis of local shoreline ecological, land use and other resources to provide the scientific basis of the program. The goals and policies in this Comprehensive Plan section together with regulations provide the city's approach to applying to our unique circumstances the act's policies of:

- The utilization of shorelines for economically productive uses that are particularly dependent on shoreline location or use.
- The utilization of shorelines and the waters they encompass for public access and recreation.
- Protection and restoration of the ecological functions of shoreline natural resources.
- Protection of the public right of navigation and corollary uses of waters of the state.
- The protection and restoration of buildings and sites having historic, cultural, and educational value.
- Planning for public facilities and utilities correlated with other shorelines uses.
- Prevention and minimization of flood damages.
- Recognizing and protecting private property rights.
- Coordination of Shoreline Management with other relevant local, state, and federal programs.

Goals and Policies

SH Goal 1

Economic Development: The City will allow private and public shoreline development that will enhance the standard of living for the residents of the City of Richland with minimal disruption of the natural environment, giving priority to those developments which are economically dependent upon

their location and use of the shorelines, and including other developments which provide an opportunity for a substantial number of people to enjoy the shorelines.

Policy 1

The City recognizes that the majority of the shoreline within the city is and will remain public open space and will work to ensure that shorelines continue to contribute to the qualities that make the city a desirable place to live and work.

Policy 2

The City will encourage development of water-oriented recreational, cultural, and related commercial facilities in appropriately designated Columbia River locations to enhance and diversify Richland's community recreational resources and its attractiveness to tourists. (Comprehensive Plan ED Goal 6, Strategy 6.3.)

Policy 3

The City will promote a mix of uses in shoreline areas on North Columbia Point to increase public access to shorelines, particularly on public properties, by developing and implementing parks, recreation, and trails plans.

Policy 4

The City will work to assure that public access minimizes adverse impacts on adjacent properties, including noise, trash, and other disturbance.

Policy 5

The City will work to encourage regional river transportation facilities in coordination with planning efforts of the Tri-Cities Rivershore Enhancement Council and other agencies. (Comprehensive Plan TE Goal 4, Policy 6.)

SH Goal 2

Shoreline Use: Assure that the shoreline areas of Richland are used in a manner which provides for appropriate distribution and integration of activities, giving priority to developments and other activities that are particularly dependent upon their location on or use of shorelines and water resources as well as those which provide an opportunity for substantial numbers of people to enjoy the shorelines, and which are planned and designed to minimize impact on shoreline environments.

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Policy 1

The City will be guided in all uses and development on shorelines in the City, which are Shorelines of Statewide Significance, by the policy of preserving the shorelines for the maximum long term benefit of future generations.

Policy 2

The City will prefer water-dependent commercial uses over non-water-dependent commercial uses in the shoreline environment and prefer water-related and water-enjoyment uses over non-water-oriented commercial uses.

Policy 3

The City will allow over –water commercial uses only as an element of water-dependent development.

Policy 4

The City will limit non-water-oriented commercial development to areas physically separated from the shoreline, where navigability is restricted, or as part of a mixed-use project that provides public access and/or ecological restoration benefits.

Policy 5

The City will provide for continued operation of the Port of Benton barging facility while preserving the generally undeveloped nature of adjacent shoreline areas.

Policy 6

The City will limit non-water-oriented industrial development to areas physically separated from the shoreline, where navigability is restricted, or as part of a project that provides public access or ecological restoration benefits.

Policy 7

The City will ensure that new residential development is designed and located to minimize disruption of shoreline resources, including native shoreline vegetation and aesthetic characteristics and not result in a net loss shoreline ecological function.

Policy 8

The City will coordinate management of lands owned by the US Army Corps of Engineers and leased to the city with the use and maintenance expectations incorporated in management plans adopted by the Corps and other policies as well as the terms of specific leases.

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SH Goal 3

Conservation:

Assure that uses and activities in shorelines are designed and conducted to protect and restore ecological functions of the shoreline scenic resources, and non-renewable natural resources while assuming continued proper management of renewable resources.

Policy 1

The City will work to ensure that all shoreline development and activities are located, designed, constructed, and maintained to protect natural resources, avoid net loss of ecological functions, and avoid impacts that degrade water quality, quantity, hydrologic connections, or local hydrology.

Policy 2

The City will work to ensure that Shoreline uses and developments are designed to minimize the need for chemical treatments, including fertilizers and pesticides, to prevent contamination of surface and groundwater resources.

Policy 3

The City will work to ensure that structures placed within water bodies or which may come in contact with a regulated water body are not treated with substances that could potentially adversely affect water quality.

Policy 4

The City recognizes the importance of vegetation remaining in urbanized areas and the importance of this vegetation, in terms of the ecological functions provided, which is often as great as or greater than in rural areas due to its scarcity and will work to ensure that new development meets vegetation conservation objectives.

SH Goal 4

Public Access: The City will maintain and improve existing public access and provide additional safe, convenient, and diversified access to and through publicly owned shorelines of the City of Richland compatible with aims of achieving equitable distribution of public usage with minimal adverse effects on natural features or areas of the shoreline, and which recognize the impacts on private property.

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Policy 1

The City will work with other jurisdictions, property owners, open space groups and all interested parties to develop and implement regional and City parks, recreation, and trails plans and appropriate implementation strategies. (See Comprehensive Plan OS-Policy 1)

Policy 2

The City will work to increase public access to shorelines, particularly on public properties, by developing and implementing parks, recreation, or trails plans in appropriately designated locations.

Policy 3

The City will work to require and/or encourage public access as part of private shoreline development in accordance with adopted parks and recreation plans, where appropriate, and in compliance with constitutional limitations.

Policy 4

The City will work to provide public access and use of the Columbia River and Yakima River shoreline in a manner that accommodates various uses but limits their impact on the natural environment. (See Comprehensive Plan LU Goal 6.) Assure that public access improvements do not result in a net loss of shoreline ecological functions.

Policy 5

The City will work to ensure that meeting the level of demand for public access as well as the use, location, and design of facilities will comply with the following:

- Richland Comprehensive Land Use Element
- Richland Comprehensive Park and Recreation Facilities Element
- Richland Parks, Recreation, and Open Space Plan
- Sacagawea Heritage Trail Plan
- Tapteal Greenway Project Plan

SH Goal 5

Recreation:

Assure diverse, safe, convenient, and adequate recreational opportunities along the shorelines of the City of Richland compatible with the natural shoreline system, to meet community and regional needs of this area.

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Policy 1

The City will work to encourage the use of publicly owned land for public access to the shoreline and recreational development appropriate in intensity to the character and ecological sensitivity of the site.

Policy 2

The City will work to ensure that recreational facilities and their associated access and circulation systems are designed to minimize impacts on shoreline resources and will not result in a net loss of shoreline ecological functions.

Policy 3

The City will ensure that water-dependent and water-related recreational development is preferred over non-water-oriented recreational development in the shoreline. Non-water-oriented elements of approved recreational facilities should be located upland from water-oriented uses whenever possible.

Policy 4

The City will work to ensure that recreational development protects sensitive natural resources and scenic elements and may be restricted in Natural Shoreline Environmental Designations.

SH Goal 6

Flood Damage:

Recognize that flooding is a natural process occurring throughout the watershed but can have adverse effects on human uses and development. The City will balance preservation of flooding processes with flood hazard reduction measures depending on existing and planned development patterns.

Policy 1

The City will work to integrate flood hazard reduction provisions on applicable watershed management plans, comprehensive flood hazard management plans, and other comprehensive planning efforts, provided those measures are consistent with the Shoreline Management Act and this program.

Policy 2

The City will manage existing flood control levees and other facilities in a manner that provides the maximum habitat benefits consistent with maintaining the structural integrity and effectiveness of the facilities.

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Policy 3

On the Yakima River the City approach to flood hazard management will be to avoid locating development that would be damaged by flooding to the maximum extent feasible. New development should be located and designed to avoid the need for future flood protection.

Policy 4

Allow new structural flood hazard reduction measures only where demonstrated to be necessary to protect existing development in situations where nonstructural measures are not feasible. New structural flood hazard reduction measures shall be placed landward of riparian vegetation areas and shall interfere as little as possible with channel migration. Impacts on ecological functions and habitats must be successfully mitigated to assure no net loss.

Policy 5

Locate and design infrastructure, including utilities, roads, and bridges to interfere as little as possible with floodplain functions.

SH Goal 7

Circulation:

Develop a safe and convenient shoreline circulation system to meet the needs for efficient movement of people, consistent with the shoreline environments, located and designed to minimize adverse impact on the environment.

Policy 1

The City will work to integrate public access on the shoreline with area wide non-motorized trail plans to provide the maximum opportunities for shoreline pedestrian access. (See Comprehensive Plan PTOSM Goal 4.)

Policy 2

The City will work to tailor the type of transportation facilities within the shoreline to the sensitivity of shoreline ecological resources and locate and design new major circulation systems away from the shoreline except for necessary crossings.

Policy 2

The City will work to integrate public physical and visual access into transportation facilities along shorelines.

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SH Goal 8

Historical Cultural: Identify, preserve, and enhance or restore areas and sites having significant historic, cultural, educational, or scientific values.

Policy 1

The City will work with local groups and agencies, state and federal agencies and tribes to identify and conserve cultural and historic sites and particularly will comply with US Army Corps of Engineers requirements for preservation of cultural resources on lands managed by that agency or leased to the city.

Policy 2

The City will work to prevent damage to any site containing archaeological resources or having historic, cultural, scientific, or educational value and will work to conserve resources that contribute to understanding of our heritage.

Policy 3

The City will abide by the provisions of all formal agreements entered into with the State Historic Preservation Officer and local Native American organizations regarding identification and preservation of historically and archaeologically significant sites.

Policy 4

The City will work to ensure that new development avoids areas documented to contain high concentrations of archaeological or cultural resources and are designed to avoid damaging such resources to the maximum extent feasible.

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Section II Amendment of City of Richland Code Chapter 26 Shoreline Management

26 City of Richland Code Chapter 26 Shoreline Management is hereby amended to add a new subsection under the following policies and regulations:

26.01 General Provisions

26.01.010 Short title.

This title shall be known and may be cited as the "Richland shoreline master program" and is sometimes hereinafter referred to as the "shoreline program." [Ord. 55-79 § 1.01].

26.01.020 Purpose.

The purpose of the shoreline program is to implement the Shoreline Management Act of 1971 as now or hereafter amended (Chapter 90.58 RCW); and to provide for wise and proper management of shorelands, wetlands, and water bodies in a manner that will allow present and future generations of users the opportunity to enjoy water resources, consistent with the goals, policies and stated purposes of the shoreline program while, at the same time, recognizing and protecting private property rights consistent with the public interest. This title carries out the responsibilities imposed on the city of Richland by the Shoreline Management Act of 1971 as now or hereafter amended by adopting the policies enunciated in RCW 90.58.010, the Richland shoreline master program, and in implementation thereof, the regulations and administrative provisions contained herein. [Ord. 55-79 § 1.01].

26.01.030 Master program adopted.

The Richland shoreline master program consists of the following elements which are subject to review and approval by the Washington State Department of Ecology pursuant to RCW 90.58.090:

A. Comprehensive Plan Policies Shoreline Section of the Land Use Element

B. Regulations in City of Richland Municipal Code (RMC) Chapter 26 Shoreline Management Regulations

C. Sensitive Area Regulations in RMC Chapter 22.10 as amended and incorporated into this program as part of Chapter 26, specifically Section 26.60.

D. The Shoreline Restoration Element of the Shoreline Master Plan, of which one printed copy in book form on file in the office of the City Clerk and made available for examination by the general public, shall not be considered to contain regulations but shall be utilized as a guideline for capital improvements planning by the City and other jurisdictions undertaking ecological restoration activities within Shoreline Management Act jurisdiction.

E. Maps, including the Shoreline Environment Designation and Regulatory Reaches Map and the map folio in the SMP Inventory, Analysis and Characterization Report, of which one original

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copy is on file in the office of the City Clerk and made available for examination by the general public, and another original copy of which is available at the Community Development Department. Electronic copies may also be posted online at the City's website.

26.01.040 Shoreline Program Review.

The planning commission shall conduct an annual review of the shoreline program and shall recommend to city council any changes or modifications deemed appropriate. The city council shall after public hearing and approval by the Department of Ecology, adopt, deny, or adopt with modifications the recommendations of the planning commission.

26.01.050 Annexations.

It is anticipated that future annexations to the city of Richland may include water bodies, shorelines, and wetlands which are subject to the Shoreline Management Act of 1971, as amended. Areas within the city's Urban Growth Area are assigned shoreline environmental designations in accordance with WAC 173-26-150. Policies and regulations of this program shall take effect concurrent with annexation. No additional procedures are required by the city or the Department of Ecology for these provisions to have full force and effect.

26.01.060 Amendments.

It is recognized that future amendments to the shoreline program may be necessary in the interest of the health, safety, and general welfare of the citizens of Richland and the state of Washington. The following procedure shall be observed in amending the shoreline program:

A. Proposed amendments to the regulations and boundaries set forth in this shoreline program shall follow the procedures outlined in RMC 23.70.180 through 23.70.250 on forms provided by the administrator.

B. There shall be established a mailing list of interested agencies, associations, and organizations to be notified of any proposed amendments to the shoreline program. It shall be the responsibility of the agency, association, or organization to indicate in writing their interest in being included on the mailing list and their official mailing address.

C. Fees as set forth in the schedule of fees contained in RMC 19.80.020 shall accompany applications for an amendment to the shoreline program.

D. No amendment to the shoreline program shall be adopted without Department of Ecology review and approval. [Ord. 55-79 § 1.01; Ord. 13-96; Ord. 28-05 § 1.13].

26.10 Shoreline Environment designations

Shoreline areas are classified into specific environment designations 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 the City of Richland Comprehensive plan. Lands not designated are assigned a recreation conservancy environment designation.

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26.10.001 Environment designation – Official map.

The shoreline environment designation map with regulatory reaches, and all amendments thereto adopted as a part of the shoreline program in RMC 26.01.030, shall be filed in the office of the administrator and may be viewed in the Development Services division. When uncertainty exists as to the exact location of an environment boundary line, the rules of construction in RMC 23.08.050 shall apply.

26.10.010 Natural Environment

26.10.011 Purpose.

The designation of Natural Environments on Richland's shorelines is to protect those shoreline areas that are relatively free of human influence or that include intact or minimally degraded shoreline functions intolerant 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, the city will control the type and range of uses allowed and plan for restoration of degraded shorelines within this environment.

26.10.012 Designation Criteria

The Natural Environment designation in Richland is assigned to shoreline areas that are relatively ecologically intact due to a low level of human disturbance, or areas which have been disturbed in the past but either have been isolated from human activity in the near past or are subject to a restoration program designed to restore natural ecological processes and functions. These areas are relatively free of structural shoreline modifications, structures, and intensive human uses.

26.10.013 Management Policies

In applying the use chart in this program, and the zoning allowed uses the following shall guide the liberal interpretation of these regulations.

A. A use with associated levels of human activity that would degrade the ecological functions or natural character of the shoreline area shall not be allowed.

B. The following new uses are not allowed in the Natural Environment:

1. Commercial uses.
2. Industrial uses.
3. Residential uses.
4. Non-water-oriented recreation other than public access, or water-oriented recreation uses resulting in more than minor modification of shoreline vegetation and topography or in-stream structure
5. Roads, parking areas and utility corridors and utility facilities that can be feasibly located outside of "natural" designated shorelines.

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C. Scientific, historical, cultural, educational, research uses, and very low-intensity water-oriented recreational access uses may be allowed provided that no significant ecological impact on the area will result.

D. Any activity or significant vegetation removal that would reduce the capability of vegetation to perform normal ecological functions is not allowed.

26.10.020 Recreation Conservancy Environment

26.10.021 Purpose.

The Recreation Conservancy Environment on Richland's shorelines seeks to satisfy some of the needs of the community for low intensity recreation uses with minimal modification of the shoreline character. The intensity of recreational uses should be designed to avoid alteration of existing vegetation as much as feasible and introduce low levels of human use.

26.10.022 Designation criteria.

A. A Recreation Conservancy environment designation is assigned to public lands on the shoreline which have been modified by past human uses or activities but retain a range of ecological functions such that low intensity uses are most appropriate.

26.10.023 Management Policies

In applying the use chart in this program, and the zoning allowed uses the following shall guide the liberal interpretation of these regulations.

A. Management plans for these lands shall strike an appropriate balance between enjoyment of these areas and limiting potential adverse effects to aquatic areas, the land, associated vegetation, and wildlife. Some areas have the character of natural open space and shall receive a higher level of protection.

B. A use with associated levels of human activity that would degrade the ecological functions or natural character of the shoreline area should not be allowed.

C. The following new uses are not allowed in the Recreation Conservancy Environment:

1. Commercial uses, except for low intensity activities which enhance public enjoyment of the land
2. Industrial uses.
3. Residential use.
4. Recreation uses requiring more than minor modification of shoreline vegetation and topography.
5. In-stream structures of a magnitude that would alter natural geohydraulic processes or be a substantial visual intrusion to users of the area.

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6. Roads, parking areas and utility corridors and facilities that can be feasibly located outside of shorelines.

D. Scientific, historical, cultural, educational, research uses, and low-intensity recreational access uses including paved trails for regional trail systems or handicapped access may be allowed provided that no significant ecological impact on the area will result. For the most part, soft surface trails should be employed.

E. All activities or significant vegetation removal that would reduce the capability of vegetation to perform normal ecological functions is not allowed.

F. Utility facilities should be located and designed to minimize impact on scenic views or aesthetic qualities and minimizes environmental impact.

26.10.030 Recreation Environment

26.10.031 Purpose.

The Recreation Environment on Richland's shorelines is designed to satisfy the needs of the community for higher intensity recreation uses including both water-oriented and non-water-oriented uses. This environment includes existing and planned parks where native vegetation has been replaced by introduced species for aesthetic enjoyment as well as for active areas such as informal lawn areas, picnic areas and sports fields. The local community makes extensive use of developed parks along the shoreline for a variety of recreation uses and strongly supports these areas. Water-oriented uses are preferred, but non-water-oriented uses are allowed as long as the location and configuration does not substantially interfere with enjoyment of the shoreline.

26.10.032 Designation criteria.

A Recreation Environment designation is assigned to public and private lands on the shoreline which have been modified by past human uses or activities and are devoted primarily to the public enjoyment of the shoreline and a variety of recreational activities.

26.10.033 Management Policies

In applying the use chart in this program, and the zoning allowed uses the following shall guide the liberal interpretation of these regulations.

A. A use with associated levels of human activity that would substantially degrade existing ecological functions of the shoreline area should not be allowed.

B. The intensity of uses within the shoreline should generally follow a gradation with lower intensity uses nearer the shoreline and higher intensity uses at a greater distance, except for uses such as boat launches that require a shoreline location.

C. The following new uses are not allowed in the Recreation Environment:

1. Industrial uses.

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2. Commercial uses, except for franchises granted by the city which enhance public enjoyment of the shoreline and the overall recreational setting.

3. In-stream structures of a magnitude that would alter natural geohydraulic processes or be a substantial visual intrusion to users of the area.

D. A wide variety of recreation uses are appropriate with a preference for water-oriented uses and activities including beaches, in-water structures, boat launches and other facilities that enhance the public enjoyment of the shoreline including active and passive uses such as boating, fishing, birdwatching, and similar uses.

E. Non water-oriented recreation uses such as lawn areas and picnic areas that are enhanced by the ability to enjoy the aesthetic qualities of the shoreline are the next priority.

F. Active recreation uses such as sports fields may be located within shoreline jurisdiction, provided they do not displace opportunities for water-oriented uses. In general, such uses shall be located more than 100 feet from OHWM, unless specific site conditions justify a closer location.

G. Structures that serve recreation and community uses including gymnasia and community centers should be located outside shoreline jurisdiction unless specific site conditions justify a closer location.

H. Roads and parking areas should be located as far from the water as feasible, preferably outside of shoreline jurisdiction.

I. Utility facilities should be located and designed to minimize impact on scenic views or aesthetic qualities and minimize environmental impact.

26.10.040 Rural Environment

26.10.041 Purpose.

The designation of Rural Environments on Richland's shorelines seeks to protect agricultural land and other historically rural areas from pressures of urban expansion, provide buffer areas between urban areas, protect ecological functions of the shoreline, and maintain open spaces and opportunities for recreational and other uses compatible with agricultural activities.

26.10.042 Designation criteria.

The Rural Environment designation is applied to shoreline areas inside urban growth areas that are designated by the Comprehensive Plan as agricultural or zoned agriculture, suburban agriculture, or floodplain.

26.10.043 Management policies.

In applying the use chart in this program, and the zoning allowed uses the following shall guide the liberal interpretation of these regulations.

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A. Uses in the rural environment are limited to those which sustain the shoreline area's physical and biological resources and uses of a nonpermanent nature that do not substantially degrade ecological functions or the rural or natural character of the shoreline area.

B. Commercial and industrial uses are not allowed, except as directly related to agricultural use or products, including sale of products grown on the premises;

C. Water-dependent and water-enjoyment recreation facilities are a preferred use, provided they do not deplete the resource over time. Boating facilities, angling, wildlife viewing trails, and swimming beaches, are preferred uses.

D. Residential subdivisions, including short plats, shall maintain an overall density of one dwelling unit for every five acres.

26.10.050 Residential Environment.

26.10.051 Purpose.

The Residential Environment on Richland's shorelines is designed to accommodate residential development and appurtenant structures at a variety of housing types and population densities consistent with the Comprehensive Plan and zoning. Protection is provided against hazards, objectionable influences, traffic, building congestion, and lack of light, air, and privacy. Certain compatible public service installations are permitted in residential use districts. An additional purpose is to provide appropriate public access and recreational uses, particularly associated with multi-family use.

26.10.052 Designation criteria.

The Residential Environment designation is applied to shoreline areas inside urban growth areas that are designated by the Comprehensive Plan as predominantly single-family or multifamily residential development or are planned for residential development.

26.10.053 Management policies.

In applying the use chart in this program, and the zoning allowed uses the following shall guide the liberal interpretation of these regulations.

A. Standards for density or minimum frontage width, setbacks, lot coverage limitations, buffers, shoreline stabilization, vegetation conservation, sensitive area protection, and water quality are provided in this program and in zoning regulations to assure no net loss of shoreline ecological functions, taking into account the environmental limitations and sensitivity of the shoreline area, the level of infrastructure and services available, and other comprehensive planning considerations.

B. Residential areas isolated from the shoreline by levees or by intervening land in public ownership will have limited impact on shoreline resources and are not subject to standards such as buffers if the use of the intervening land interrupts natural ecological functions.

26.10.060 Waterfront Use Environment

26.10.061 Purpose.

The Waterfront Use Environment is a special commercial and residential classification providing for the establishment of such uses as marinas, boat docking facilities, resort motel and hotel facilities, offices, and other similar commercial, apartment, and multifamily uses which are consistent with waterfront oriented development. This environment encourages mixed special commercial and high-density residential uses to accommodate a variety of lifestyles and housing opportunities and enhances and maintains existing ecological functions of shoreline and provides for maximum public access and circulation.

26.10.062 Designation Criteria

The Waterfront Use Environment designation is applied to shoreline areas inside urban growth areas that are designated by the Comprehensive Plan for waterfront use.

26.10.063 Management Policies

In applying the use chart in this program, and the zoning allowed uses the following shall guide the liberal interpretation of these regulations.

A. Water-oriented shall be given highest priority for waterfront sites.

B. Mixed use, resort motel and hotel facilities, special commercial and similar uses are encouraged to maximize public access and provide for aesthetic enjoyment of the shoreline for a substantial number of people as a general characteristic of the use and through location, design, and operation ensure the public's ability to enjoy the physical and aesthetic qualities of the shoreline.

C. Physical public access should be provided by the shoreline trail system.

D. Visual access should be provided by the shoreline trail system and by open space that provides congregating areas for people to enjoy the aesthetic qualities of the shoreline, including seating areas and compatible commercial uses.

26.10.070 Industrial Conservancy

26.10.071 Purpose

The Industrial Conservancy Environment is applied to the Port of Benton barging facilities in North Richland to provide for transfer of waterborne cargos to land while maintaining the current generally undeveloped condition of the shoreline area outside of those areas needed for port facilities.

26.10.072 Designation Criteria

The Industrial Conservancy Environment designation is applied to the Port of Benton site on the Columbia River in North Richland.

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26.10.073 Management Policies

In applying the use chart in this program, and the zoning allowed uses the following shall guide the liberal interpretation of these regulations.

A. Water dependent use shall be given highest priority but should occupy only the area needed for the water-related elements of the use.

B. Other industrial uses should be located outside of shoreline jurisdiction.

C. The shoreline trail should be maintained and enhanced through the site with provisions for interruption of use only when the site is actively used for transfer of waterborne cargos.

D. The open space and ecological functions of the site, particularly the area between the shoreline trail and the water should be maintained and enhanced.

26.10.090 Aquatic Environment

26.10.091 Purpose.

The purpose of the Aquatic Environment is to protect, restore, and manage the unique characteristics and resources of the areas waterward of the ordinary high water mark (OHWM).

26.10.092 Designation Criteria.

The Aquatic Environment is defined as the area waterward of the ordinary high water mark of all streams, rivers, and other water bodies constituting shorelines of the state, together with their underlying lands and their water column; but does not include associated wetlands and other shorelands shoreward of the ordinary high water mark. This designation is not found on the Shoreline Environment Map, but shall be assigned based on the description above.

26.10.093 Management Policies.

A. Water-dependent uses and a limited range of water-oriented uses are allowed in the Aquatic Environment as necessary to meet other objectives of this program, subject to allowed uses in adjacent upland shoreline environment designations and provision of shoreline ecological preservation and enhancement and public access.

B. New over-water structures are allowed only to serve water-dependent uses, public access, or ecological restoration and should be limited to the minimum necessary to support the structure's intended use. Multiple use of such structures may be required.

C. Transportation, utility facilities, and Essential Public Facilities may be allowed subject to demonstration that no alternative location is feasible.

D. All uses should minimize interference with surface navigation, allow for the safe, unobstructed passage of fish and wildlife, particularly those species dependent on migration, prevent water quality degradation, avoid alteration of natural hydrographic conditions, and consider impacts to public views.

E. Ecological enhancement is an allowed and preferred use.

26.20 General Regulations

26.20.010 Shorelines of Statewide Significance

A. Applicability: The Shoreline Management Act of 1971 designated certain shoreline areas as shorelines of state-wide significance. Within Richland's jurisdiction are shorelines of state-wide significance. Shorelines thus designated are important to the entire state. Because these shorelines are major resources from which all people in the state derive benefit, this jurisdiction gives preference to uses which favor long-range goals and support the overall public interest.

B. Decision Criteria: Every project located on a Shoreline of State-Wide Significance shall address the following criteria in order of preference in all permit review, in addition to other criteria provided by this Program:

1. Recognize and protect the state-wide interest over local interests by:
    a. Recognizing and taking into account state agencies' policies, programs, and recommendations in developing and administering use regulations and in approving shoreline permits.
    b. Recognize the following statewide interest specific to the Columbia River:
        i. Protect, preserve and restore natural resources and ecological functions, including but not limited those associated with endangered species or state priority species, commercial and recreational fisheries, and tribal fishing rights;
        ii. Promote recreational use and public access;
        iii. Promote water-dependent port uses consistent with other goals of the program;
    c. Recognize the following statewide interest specific to the Yakima River:
        i. Preserve and restore ecological functions, particularly those associated with endangered species, commercial and recreational fisheries, and tribal fishing rights;
        ii. Promote recreational use and public access;
2. Preserve the natural character of the shoreline.
    a. Designate and administer shoreline environments and use regulations to minimize damage to the ecology and environment of the shoreline as a result of man-made intrusions on shorelines.
    b. Upgrade and redevelop those areas where intensive development already exists in order to reduce adverse impact on the environment and to accommodate future growth rather than allowing high-intensity uses to extend into low-intensity use or underdeveloped areas.
    c. Protect, preserve, and enhance diversity of vegetation and habitat values, wetlands, and riparian corridors associated with shoreline areas.
3. Result in long-term over short-term benefit.

a. Evaluate the short-term economic gain or convenience of developments relative to the long-term potential for impairment of natural shoreline functions.

b. In general, preserve resources and values of shorelines of state-wide significance for future generations and restrict or prohibit development that would irretrievably damage shoreline resources. Actions that would convert resources into irreversible uses or detrimentally alter natural conditions characteristic of shorelines of statewide significance should be severely limited. Restoration should be required where natural resources of statewide importance are diminished over time by cumulative impacts.

c. Actively promote aesthetic considerations when contemplating new development, redevelopment of existing facilities, or general enhancement of shoreline areas.

4. Protect the resources and ecology of the shoreline:

a. Minimize development activity that will interfere with the natural functioning of the shoreline ecosystem, including, but not limited to, stability, drainage, aesthetic values, and water quality.

b. All shoreline development should be located, designed, constructed, and managed to avoid disturbance of and minimize adverse impacts to fish and wildlife resources, including migratory routes and areas used for spawning, nesting, rearing, and habitat.,

c. Restrict or prohibit public access onto areas with high ecological value which cannot be maintained in a natural condition under intensive human use.

d. Shoreline materials including, but not limited to, bank substrate, soils, beach sands and gravel bars should be left undisturbed by shoreline development. Gravel mining should be severely limited in shoreline areas.

e. Preserve environmentally sensitive wetlands for use as open space or buffers and encourage restoration of currently degraded areas.

5. Increase public access to publicly owned areas of the shoreline.

a. Retain and enhance public access to the shoreline including passive enjoyment, recreation, fishing, and other enjoyment of the shoreline and public waters consistent with the enjoyment of property rights of adjacent lands.

b. Give priority to developing a system of linear access consisting of paths and trails for pedestrians and nonmotorized vehicles along the shoreline areas, providing connections across current barriers such as highways and railroads, and connecting to upland parking that enhance access to the community as a whole.

c. Provide multi-purpose nonmotorized trail facilities also serving the mobility impaired wherever feasible.

6. Increase recreational opportunities for the public on the shoreline.

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a. Plan for and encourage development of facilities for recreational use of the shoreline including boat launches while preserving or mitigating ecological functions.

b. Retain and enhance public open space and parks along the shoreline to maximize public enjoyment while preserving ecological functions.

26.20.020 Ecological Functions, No Net Loss

A. Shoreline land uses and activities that may have adverse impacts on the environment should be minimized during all phases of development (e.g. design, construction, management and use) to ensure no net loss of ecological functions and processes. Permitted uses are designed and conducted to minimize, in so far as feasible, any resultant damage to the ecology and environment. Shoreline ecological functions that shall be protected include, but are not limited to, fish and wildlife habitat, food chain support, and water temperature maintenance. Shoreline processes that shall be protected include, but are not limited to, water flow; erosion and accretion; infiltration; ground water recharge and discharge; sediment delivery, transport, and storage; large woody debris recruitment; organic matter input; nutrient and pathogen removal; and stream channel formation/maintenance. In recognition of the importance of shorelines in an arid environment to a wide range of bird species, new construction and major renovation projects shall incorporate bird-friendly building materials and design features, including, but not limited to, those recommended by the American Bird Conservancy Guidelines for Bird-friendly Design.

B. An application for any permit or approval shall demonstrate all reasonable efforts have been taken to provide sufficient mitigation such that the activity does not result in net loss of ecological functions. Mitigation shall occur in the following prioritized order:

1. Avoiding the adverse impact altogether by not taking a certain action or parts of an action, or moving the action.

2. Minimizing adverse impacts by limiting the degree or magnitude of the action and its implementation by using appropriate technology and engineering, or by taking affirmative steps to avoid or reduce adverse impacts.

3. Rectifying the adverse impact by repairing, rehabilitating, or restoring the affected environment.

4. Reducing or eliminating the adverse impact over time by preservation and maintenance operations during the life of the action.

5. Compensating for the adverse impact by replacing, enhancing, or providing similar substitute resources or environments. Preference shall be given to measures that replace the impacted functions on-site or in the immediate vicinity of the impact. However, alternative compensatory mitigation within the watershed that addresses limiting factors or identified critical needs for shoreline resource conservation based on watershed or comprehensive resource management plans may be authorized.

6. Monitoring the adverse impact and taking appropriate corrective measures.

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C. Applicants for permits have the burden of proving that the proposed development is consistent with the criteria set forth in the Shoreline Master Program and the Act, including demonstrating all reasonable efforts have been taken to provide sufficient mitigation such that the activity does not result in net loss of ecological functions.

26.20.030 Sensitive Areas

Sensitive Areas within the shoreline jurisdiction shall be regulated in accordance with Section 26.60 of this program and include:

Article I. General Introduction

Article II. Wetlands

Article III. Fish and Wildlife Habitat Areas

Article IV. Geologic Hazard Areas

Article V. Aquifer Protection Areas

Article VI. Flood Hazard Areas

Article VII. General Information

26.20.040 Shoreline Vegetation Conservation

In addition to the Sensitive Areas standards of Section 26.60, the following shall apply to development on the shoreline:

A. A vegetation management plan for City parks and recreation areas, including both developed and undeveloped lands, shall be developed and implemented in coordination with the US Army Corps of Engineers that protects ecological functions, and results in no net loss of these functions through operations, maintenance, or restoration actions in these areas. Include integrated vegetation management for control of invasive weeds, and replace existing invasive species with native or compatible species that perform ecological functions similar to native species.

B. A vegetation management plan shall be required for all Sensitive Area buffer areas with degraded native vegetation within SMA jurisdiction and shall:

1. Maintain adequate cover of native vegetation including trees and understory. If a portion of the buffer has been cleared, or if tree cover is substantially less than a native climax community, enhancement plantings shall be installed.

2. Provide a dense screen of native trees at the perimeter of the buffer to provide and protect ecological functions and prevent viewing of adjacent development from within the buffer. If existing vegetation or topographic features are not sufficient for these purposes, planting shall be required. Fencing may be required if needed to block headlights or other sources of light or to provide an immediate effective visual screen.

3. Provide an integrated vegetation management plan for control of invasive weeds, and replace existing invasive species with native or compatible species.

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4. Provide a monitoring and maintenance plan. This provision may be waived for single family residential lots.

C. In cases where approved development results in unavoidable adverse impacts to existing shoreline vegetation, mitigation shall be required to ensure that there will be no net loss of the ecological functions. Mitigation shall take place on-site to the maximum extent feasible. A guarantee, in the form of a bond or other security device, shall be required to assure successful establishment including an appropriate monitoring period.

D. Mitigation plans shall be completed before initiation of other permitted activities, unless a phased or concurrent schedule assuring completion prior to occupancy is approved.

E. Lawns and other non-native vegetation maintained within shoreline jurisdiction shall minimize use of chemical fertilizers, pesticides, herbicides, or other similar substances. Such chemical treatments shall be applied in accordance with manufacturer's recommendations and associated local, state, and federal laws and regulations. Applications in solid time release form shall be preferred over liquid or concentrate application. Best Management Practices (BMPs) shall be implemented in all chemical applications.

F. Aquatic weed management by prevention is the first priority. Where active removal or destruction is necessary, it should be the minimum required to allow water-dependent activities to continue, minimize negative impacts to native plant communities, and include appropriate handling or disposal of weed materials.

1. Aquatic weed control shall only occur when native plant communities and associated habitats are threatened or where an existing water dependent use is restricted by the presence of weeds. Aquatic weed control shall occur in compliance with all other applicable laws and standards.

2. The control of aquatic weeds by derooting, rotovating or other method, which disturbs the bottom sediment, shall be considered development for which a shoreline permit is required, unless it will maintain existing water depth for navigation in an area covered by a previous permit for such activity, in which case it shall be considered normal maintenance and repair and therefore exempt from the requirement to obtain a shoreline permit.

3. Use of herbicides to control aquatic weeds shall be prohibited except where no reasonable alternative exists and weed control is demonstrated to be in the public's interest.

26.20.050 Public Access

A. Public access on the Columbia River is currently provided by a nearly continuous Riverfront Trail system developed by the city on public and private lands. Future public access on public and private lands should be consistent with the overall strategy for providing continuous trails along the shoreline. Future development may be required to reconfigure the existing trail to provide enhanced public access and fit with specific development plans, including public and private open space.

B. Public access on the Yakima River should be guided by the adopted City and regional trail plans. Future public access on public and private lands should be consistent with the overall strategy for providing continuous trails along the shoreline while taking into consideration the range of ecological functions and sensitivities of different areas. Future development shall provide public access consistent with the trail plan and may provide additional trails subsidiary to the main trail, where such opportunities are available to provide enhanced public access and fit with specific development plans, including public and private open space.

C. Physical public access is preferred to solely visual access. Where physical public access is determined not feasible, the applicant shall incorporate visual public access. Visual public access may consist of view corridors, viewpoints, or other means of visual approach to public waters. Physical public access may consist of a dedication of land or easement and a physical improvement in the form of a trail, park, or other area serving as a means of physical approach to public waters.

D. All developments requiring Shoreline Substantial Development or Special Use Permits, and all subdivision or development of more than four (4) lots or residential units shall provide public access to the shoreline unless criteria (1) and (2) below are met:

1. The applicant demonstrates one or more of the following provisions apply:

    a. Unavoidable health or safety hazards to the public would accompany public access that cannot be avoided by application of alternative design features or other solutions;

    b. Inherent security requirements of the use cannot be satisfied through the application of alternative design features;

    c. The cost of providing the access, easement, or an alternative amenity, or mitigating the impacts of public access, is unreasonably disproportionate to the total long-term cost of the proposed development;

    d. Unacceptable environmental harm will result from the public access that cannot be mitigated;

    e. Significant undue and unavoidable conflict between any access provisions and the proposed use and/or adjacent uses would occur and cannot be mitigated.

    f. Public access is provided by a public entity through implementation of a public access plan incorporated into its master plan, developed through a public participation process and incorporated into this program.

2. Based on documentation provided by the applicant, the City determines that all reasonable alternatives have been exhausted, including, but not limited to:

    a. Limiting the size or placement of public access facilities;

    b. Regulating access by such means as maintaining a gate and/or limiting hours of use;

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c. Designing separation of uses and activities (e.g. fences, terracing, use of one-way glazing, hedges, landscaping, etc.); and

d. Providing for access at a site geographically separated from the proposal including contribution to regional trail or public access plans.

E. The following activities generally are not required to provide public access, except as determined on a case-by-case basis as part of development review:

1. Single family development of four (4) or fewer units
2. Dredging
3. Landfill and excavation
4. Mining
5. Private docks serving four (4) or fewer units
6. Minor additions or changes to an existing use that does not change the configuration of the existing use or add substantial facilities.
7. Ecological restoration or enhancement activities not associated with a development.

F. Specific provisions for public access shall be evaluated on a case-by-case basis to ensure that they are of the kind, quality and scope to provide a substantial public benefit with respect to the Shoreline Management Act's objectives and do not create a disproportionate impact on landowners.

G. The amount and configuration of public access required shall depend on the proposed use(s) the range of ecological functions and sensitivities of different areas on a site, the shoreline environmental designation, and the following criteria:

1. Any development or use that creates increased demand for public access to the shoreline shall provide public access to mitigate this impact.
2. Any development or use that interferes with an existing public access shall provide public access to mitigate this impact.
3. Development within the waterfront environment is encouraged to provide public access in the form of a public plaza meeting the criteria in RMC 26.30.40.F.2.
4. Uses and developments that utilize aquatic lands shall provide public access consistent with maintaining the use and public safety. Public access shall be provided generally equivalent to 10 to 20 percent of the public harbor land or aquatic land utilized. Where over-water access is found to be infeasible pursuant to subsection D of this Section upland on and off-site facilities may be approved as an alternative. Single-family residential uses or uses that are developed with public funding or other public resources are exempt from this criterion.
5. New or expanded dikes and levees shall provide linear public access trails along the facility.

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6. Public roads or other public facilities parallel to or crossing shorelines shall provide public access trails or sidewalks within the right-of-way. Additional right-of-way acquisition may be required to provide public access.

7. Public utilities within the shoreline, other than distribution facilities, shall provide public access consistent with maintaining the use and public safety.

H. Public access shall be consistent with the shoreline environmental designation and may consist of a physical improvement in the form of a walkway, trail, bikeway, corridor, viewpoint, park, deck, observation tower, pier, boat-launching ramp, dock or pier area, or other area serving as a means of view and/or physical approach to public waters and may include interpretive centers and displays. Public access improvements shall meet the following location and design criteria:

1. Public access shall be provided as close (horizontally and vertically) as feasible to the water's edge to provide the general public with opportunity to reach, touch, view, and enjoy the water's edge, provided that public access does not adversely affect sensitive ecological features or lead to an unmitigated reduction in ecological functions.

2. If open space is provided along the shoreline in the form of Sensitive Area buffers, and public access can be provided in a manner that will not result in a loss of ecological function, a public pedestrian access walkway along and parallel to the waterfront of the property is the preferred design. The walkway shall be set back from sensitive features and may provide only limited and controlled access to the water’s edge. Fencing may be provided to control damage to plants and other sensitive features and shall provide for wildlife movement. Soft surface trails and limited width should be specified, where appropriate, to reduce impacts to ecologically sensitive resources.

3. Public access shall be connected directly to the nearest public street; shall include provisions for handicapped and physically impaired persons where feasible and where additional impact on ecological functions will not occur; and shall be located adjacent to and connect with other public areas, accesses, and connecting trails;

4. Where physical access to the water’s edge is not present or appropriate, a public viewing area shall be provided in cases where views of the water or shoreline are available

5. In natural open space zones, the need for trails for ADA access should be balanced with the extent of alteration of the natural environment required to accommodate such facilities.

6. Design shall minimize intrusions of privacy for both site users and public access users by avoiding locations adjacent to windows and/or outdoor private open spaces or by screening or other separation techniques.

7. Design shall provide for the safety of users, including the control of offensive conduct through providing public visibility (not including removal of buffer vegetation), or provision of specific oversight. The administrator may authorize public access to be temporarily closed to develop a program to address offensive conduct. If offensive conduct cannot be reasonably controlled, alternative facilities may be approved as a permit revision.

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8. Public amenities appropriate to the use of the public access space shall be provided. These amenities can include, but are not limited to benches, picnic tables, public docks, and sufficient public parking.

9. Public restrooms and facilities for animal waste may be required as part of public access amenities for developments by public entities or commercial developments that attract a substantial number of persons.

I. View Protection

1. Shoreline development and shall be designed to avoid blocking, reducing, or adversely interfering with the public's existing visual access to the water and shorelines.

2. Development and uses on public lands such as parks, open space, street ends, rights-of-way and utilities shall provide visual access corridors where views of water bodies are available from public roadways and public viewpoints to the extent feasible consistent with facilities for water-dependent use or recreation use and maintenance of native vegetation buffers for Sensitive Areas.

J. Public access shall be maintained over the life of the use or development. Future actions by the applicant successors in interest or other parties shall not diminish the usefulness or value of the public access provided.

1. Required public access sites shall be fully developed and available for public use at the time of occupancy of the use or activity or in accordance with provisions for guaranteeing installation through a performance assurance.

2. Public access provisions shall be recorded as an easement, or a dedication to the public on the face of a plat or short plat. Said recording with the County Auditor's Office shall occur at the time of building permit approval or plat recordation, whichever comes first.

3. Maintenance of the public access shall be the responsibility of the owner unless specifically accepted by a public or non-profit agency.

4. The minimum width of public access easements shall be 15 feet, unless the city determines that undue hardship would result. In such cases, easement width may be reduced only to the minimum extent necessary to relieve the hardship.

5. Public access shall be available to the public 24 hours per day unless specific exceptions are granted though the substantial development permit process where safety hazards to users or adjacent uses are substantiated.

6. Public access signs bearing the standard state approved logo or other approved design shall be installed and maintained by the applicant and owner. The sign(s) must indicate the public's right of access and hours of access, and shall be installed in conspicuous locations at public access sites. Signs may display restrictions of public access as approved by a specific condition of permit approval.

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K. Public access afforded by shoreline street ends, public utilities and rights-of-way shall be preserved, maintained and enhanced pursuant to RCW 35.79.035 and RCW 36.87.130.

26.20.060 Signs

A. All signs shall be located and designed to be compatible with the aesthetic quality of the existing shoreline and adjacent land and water uses. Signs shall minimize interference with vistas, viewpoints, and visual access to the shoreline.

B. All signs shall be permitted in accordance with the procedures of RMC Title 27 in addition to this program.

C. Freestanding commercial signs are prohibited between buildings and the shoreline, except for public information signs.

D. Except where no feasible location outside of SMA jurisdiction is available, signs placed in SMA jurisdiction should be limited to public information signs directly relating to a shoreline use or activity, water navigational signs, and legally required highway and railroad signs necessary for operation, safety and direction.

E. Over-water signs or signs on floats or pilings shall be allowed only when serving a related water-dependent use and only when the primary users of the facility approach by water and would not be served by land-mounted signs.

F. Lighted signs shall be hooded, shaded, or aimed so that lighting will not result in glare when viewed from public access facilities or watercourses.

G. Conceptual sign plans and design guidelines shall be submitted for review and approval at the time of shoreline permit application and shall be utilized in future review of sign permits for the property.

H. Signs shall not be permitted where their location or design obstructs or otherwise interferes with traffic movement or where the location or orientation unnecessarily interferes with upland users.

26.20.070 Archaeological Areas and Historic Sites.

Included on Richland shorelines are areas known to be of significant archaeological and historic value. The Washington Department of Archaeology and Historic Preservation is recognized as the authority on matters concerning areas recorded as important archaeological or historic sites. In addition Memoranda of Understanding with tribes should apply in accordance with the terms of such agreement.

A. Prior to approval of any permit requests, the planning and inspection services department of the City of Richland shall consult with the office of archaeology and historic preservation for the purpose of identifying potentially valuable archaeological data and for recommendations concerning preservation or salvage of the data identified.

B. Developers and property owners shall, in the event of discovery of archaeological resources during excavation, immediately stop work and notify the City of Richland and the Washington

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State Department of Archaeology and Historic Preservation. Development may resume only after approval by the Department of Archaeology and Historic Preservation (DAHP). The City or DAHP should notify tribes if the nature of the resource warrants.

C. Where a professional archaeologist or historian recognized by the State of Washington, has identified an area or site as having significant cultural value, or where such area is listed on a National, State, or local historic register, the City may require evaluation of the resource and application of appropriate mitigation measures as a condition of permit issuance.

D. Permits for development in shoreline areas documented to contain archaeological resources shall require inspection of the site prior to and during construction by a professional archaeologist in coordination with potentially affected Indian tribes.

26.20.080 Water Quality, Stormwater, and Non-Point Pollution

A. All development activities approved under this Title shall be designed and maintained in a manner consistent with the City's Stormwater Management Plan and adopted Engineering Design Standards. All proposed stormwater control and stormwater discharges shall be in compliance with the latest Department of Ecology Stormwater Manual for Eastern Washington.

B. Shoreline development shall be designed and maintained to minimize the need for chemical treatments, including application of fertilizers, pesticides, and herbicides, in order to prevent contamination of surface and groundwater resources.

C. All structures placed within water bodies or that may come in contact with water shall be constructed of materials that will not adversely affect water quality or aquatic plants and animals. Materials treated with creosote are prohibited in the shoreline environment.

26.20.090 Boat and Vessel Facilities

A. All boating uses, development, and facilities shall protect the rights of navigation and shall demonstrate that they result in no net loss of ecological functions and may be required to provide on-site and off-site mitigation.

B. Shared moorage serving single family use consisting of docks and piers with more than 4 berths, commercial moorage available to the general public, and moorage related to clubs or other groups not associate with a particular residential development are regulated as marinas under section 26.30.060.

C. Joint-use/shared docks and piers with 4 or fewer berths or any number of mooring buoys are regulated under this section.

D. Boating facilities shall avoid:

1. Braided or meandering river channels where the channel is subject to change in alignment or on point bars or other accretion beaches.

2. Areas where shoreline modification is required for approach and other upland facilities.

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3. Locations where they would adversely impact upland riparian or nearshore habitat for aquatic species,

4. Locations where they would adversely affect flood channel capacity or create a flood hazard; and

5. Locations where water depths for vessels are not adequate without dredging;

E. Boating facilities, except those accessory to single family residences, shall provide public access in accordance with Section 26.20.050 Public Access of this program and shall be located and designed such that existing public access to public shorelines is not obstructed nor made hazardous.

F. All in- and over-water structures shall be constructed of materials that will not adversely affect water quality or aquatic plants and animals over the long term. Wood treated with creosote, pentachlorophenol, or other similarly toxic materials is prohibited. Docks generally shall be constructed of untreated materials, such as untreated wood, approved plastic composites, concrete, or steel.

G. Vessels shall be restricted from extended mooring on waters of the state except as allowed by state regulations and unless a lease or other permission is obtained from the state and impacts to navigation and public access are mitigated.

H. Boat Launches:

1. Boat launches accessory to single family and multi-family residential uses are prohibited.

2. Private boat launches shall be allowed only for water-dependent uses and marinas and only when it is demonstrated that public boat launches will not feasibly serve the use. Rail and track systems shall be preferred over concrete ramps.

3. New public boat launches for general public use, or expansion of public boat launches by adding launch lanes shall demonstrate that:

a. Water depths are adequate to avoid the need for dredging and eliminate or minimize potential loss of shoreline ecological functions or other shoreline resources from offshore or foreshore channel dredging.

b. Adjacent residential properties will not be adversely affected by adverse proximity impacts such as noise, light and glare, or scale and aesthetic impacts. Fencing or landscape areas may be required to provide a visual screen.

c. Exterior lighting will not adversely impact aquatic species.

d. Adequate provisions are made for restroom, sewage, and solid waste disposal facilities in compliance with applicable health regulations.

e. Access and parking shall not produce traffic hazards, shall not result in excessive noise or other impacts, shall minimize traffic impacts on nearby streets, and shall include adequate parking for boat trailers. Parking on public streets may be allowed for peak periods if it

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is demonstrated that such parking will not adversely impact through traffic or residential uses.

I. New moorage to serve a single family residence may be allowed only if:

1. An applicant demonstrates that existing facilities (boat launches and public and private marinas) are not reasonably available to meet demand.

2. 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.

3. In cases where new dock or pier is approved, the city may require an agreement to share with nearby residences with water frontage and provide for expansion to serve such additional users.

J. A dock or pier serving a single family residence shall meet the following standards:

1. Piers and ramps

a. To prevent damage to shallow-water habitat, piers and/or ramps shall extend at least 40 feet perpendicular from the ordinary high water mark (OHWM). In some instances and sites, it may not be practical to extend a ramp 40' from OHWM (for instance, where this could conflict with navigation). The City may grant exceptions on a case-by-case basis based on documentation of specific limitation that exist, and in coordination with other permitting agencies.

b. Piers and ramps shall be no more than 4 feet in width.

2. The bottom of either the pier or landward edge of the ramp shall be elevated at least 2 feet above the plane of OHWM.

a. Grating shall cover the entire surface area (100%) of the pier and/or ramp. The open area of grating shall be at least 50%, as rated by the manufacturer.

b. 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.

c. 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, NOAA Fisheries, the Corps, 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 on a case-by-case basis based on documentation of specific limitation that exist, and in coordination with other permitting agencies.

3. Preservatives

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a. The dock shall be built with materials that do not leach preservatives or other materials.

b. No treated wood of any kind shall be used on any overwater structure (float, pier, or ramp).

c. No paint, stain, or preservative shall be applied to the overwater structure.

4. General

a. No electricity shall be provided to, or on, the overwater structure.

b. 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).

c. Shoreline armoring (i.e., bulkheads, rip-rap, and retaining walls) shall not occur in association with installation of the overwater structure.

d. Construction of the overwater structure shall be completed during the in-water work window (November 1 to February 28).

5. Piling and float anchors

a. 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 on a case-by-case basis in coordination with other permitting agencies in areas where safety considerations merit it, larger pilings may be considered on a case-by-case basis.

b. 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.

c. Each overwater structure shall utilize no more than 4 piles total for the entire project. A combination of two piles and four helical anchors may be used in place of four piles.

d. All pilings shall be fitted with devices to prevent perching by piscivorous (fish-eating) birds.

e. Submerged float anchors will be constructed from concrete; and shall be horizontally compressed in form, by a factor of 5 or more, for a minimum profile above the stream bed (the horizontal length and width will be at least 5 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.

f. 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.)

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6. Floats

    a. Float components shall not exceed the dimensions of 8- by 20-feet, or an aggregate total of 160 square feet, for all float components.

    b. Flotation materials shall be permanently encapsulated to prevent breakup into small pieces and dispersal in water (e.g., rectangular float tubs).

    c. 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.

    d. Functional grating will cover no less than 50% of the float.

    e. Floats shall not be located in shallow-water habitat where they could ground or impede the passage or rearing of any salmonid life stage.

    f. Nothing shall be placed on the overwater structure that will reduce natural light penetration through the structure.

    g. 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.

    h. Project construction shall cease under high flow conditions that could result in inundation of the project area except for efforts to avoid or minimize resource damage.

K. 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.

L. Docks and piers shall be set back a minimum of ten (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.

M. Moorage related to subdivision:

1. New subdivisions and short plats shall contain a restriction on the face of the plat prohibiting individual docks. A site for community or shared moorage shall be designated on the plat and owned in undivided interest by property owners within the subdivision. Shared moorage facilities shall be available to lots with water frontage in the subdivision. The over-water area of the dock shall be made available to other lots and the public for community access and may be required to provide public access depending on the scale of the facility.

2. Approval of a shared moorage for a subdivision shall be subject to the following criteria:

    a. There is no reasonably available public or private moorage that can serve the moorage needs of the residences or the subdivision.

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b. Shared moorage to serve new development shall be limited to the amount of moorage needed to serve lots with water frontage. One moorage space per lot may not be presumed.

c. The size of a dock must consider the use of mooring buoys for some or all moorage needs and the use of all or part of the dock to allow tender access to mooring buoys.

d. Public access shall be provided in all shared docks utilizing public aquatic lands that accommodate five (5) or more vessels.

3. If a community or shared dock is not developed at the time of subdivision, a community association shall be established with the authority to levy assessments within the subdivision to construct and maintain a community dock in the future. The failure of a subdivision to develop a community or shared dock shall not affect the prohibition on individual docks.

N. Multi-family residences, hotels, motels, and other commercial developments proposing to provide moorage facilities shall meet the criteria for a marina. Use of the moorage must be open to the general public on the same basis as residents or occupants and shall provide public access. If approved, no more than one joint-use moorage facility may be provided for a parcel or development.

O. Applications for docks or piers serving single commercial or industrial enterprises shall demonstrate that:

1. The facility serves a water-dependent use;

2. The facility is the minimum size required to serve the proposed use, provided that provisions for expansion or future joint use may be provided;

3. The facility minimizes impacts to the extent feasible. Where impacts are unavoidable, the facility mitigates impacts to navigation, aquatic habitat, upland habitat, public access to the water for recreation, fishing and similar use, and public access to publicly accessible lands below the OHWM.

P. Commercial or industrial moorage facilities shall demonstrate that:

1. The dock or pier shall be the minimum length required to serve the use.

2. Access from the shore to piers or floats shall minimize water cover in order to minimize impacts to shallow water habitat

3. Piers and ramps shall be elevated to provide the maximum feasible light penetration.

4. Grating, or clear translucent material, shall be utilized to the maximum extent feasible to provide light penetration.

5. Floats shall be constructed and attached so that they do not ground out on the substrate.

6. Pile spacing shall be the maximum feasible to minimize shading and avoid a "wall" effect that would block or baffle wave patterns, currents, littoral drift, or movement of aquatic life forms, or result in structure damage from driftwood impact or entrapment.

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7. Pile diameter shall be minimized while meeting structural requirements.

8. Covered structures may be permitted only to serve a water-dependent use where it is demonstrated that adequate upland sites are not feasible, and it is demonstrated that the area covered is the minimum necessary to serve the use.

26.30 Use Regulations

26.30.010 Use and Dimensional Standards

26.30.011 Use Table.

The following use activity-shoreline environment compatibility chart shall be consulted as a general guide to determine permitted uses in the various shoreline environments. Use activities permitted or requiring a Special Use Permit must be developed in accordance with all policies and regulations of the shoreline program.

A. All land uses allowed are subject to the preference for water-oriented uses and subject to specific criteria for uses included in these regulations.

B. Uses allowed in the Aquatic Environment are those allowed in the adjacent upland environment, limited to water-dependent use, ecological enhancement, and those transportation and utility facilities and Essential Public Facilities for which no alternative location is feasible.

C. If a use is prohibited in the underlying zoning district, it is also prohibited in the shoreline.

D. KEY: X= Prohibited, P= Permitted, A= Permitted as an Accessory Use, SU= Special Use Permit,

Land Use	**Natural**	**Recreation Conservancy**	**Recreation**	**Rural**	**Residential**	**Waterfront**	**Industrial Conservancy**
Resource Uses							
Agricultural Use	X	X	X	P	X	X	X
Raising Crops, Trees, Vineyards	X	X	X	P	X	X	X
Limited raising or keeping of small & large livestock	X	X	X	P	X	X	X
Roadside stands and on-farm markets for marketing fruit or vegetables; and	X	X	X	P	X	X	X
Animal feeding operations/concentrated animal feeding operations (AFO/CAFOs)	X	X	X	SU	X	X	X
Mining	X	X	X	SU	X	X	X
Automotive, Marine and Heavy Equipment							

Land Use	Natural	Recreation Conservancy	Recreation	Rural	Residential	Waterfront	Industrial Conservancy
Automotive Repair Shops/Service Stations/Part Sales	X	X	X	X	X	X	X
Boat Building	X	X	X	X	X	X	X
Car Wash – Automatic or Self-Service	X	X	X	X	X	X	X
Large Equipment Sales//Rental/ Repair/Service	X	X	X	X	X	X	X
Marinas	X	X	SU	X	X	SU	X
Marine Equipment Rentals	X	X	X	X	X	P	
Marine Gas Sales	X	X	X	X	X	SU	
Marine Repair	X	X	X	X	X	P	
Outdoor Sales/Rentals	X	X	X	X	X	X	X
Warehousing, Wholesale Use	X	X	X	X	X	X	P
Business and Personal Services							
Animal Shelter	X	X	X	SU	X	X	X
Commercial Kennel	X	X	X	SU	X	X	X
Contractors' Offices	X	X	X	X	X	X	X
Funeral Establishments	X	X	X	SU	X	X	X
General Service & Personal Services Businesses	X	X	X	X	X	P	X
Health/Fitness Facility	X	X	X	X	X	A	X
Health Spa	X	X	X	X	X	P	X
Animal Hospital/Clinic	X	X	X	SU	X	X	X
Laundry/Dry Cleaning, Retail	X	X	X	X	X	P	X
Mini-Warehouse	X	X	X	X	X	X	X
Photo Processing, Copying, Mailing & Printing Services	X	X	X	X	X	P	X
Video Rental Store	X	X	X	X	X	P	X
Cafeterias	X	X	A	X	X	A	X

Land Use	Natural	Recreation Conservancy	Recreation	Rural	Residential	Waterfront	Industrial Conservancy
Delicatessen	X	X	X	X	X	P	X
Drinking Establishments/Breweries/Wineries	X	X	X	X	X	P	X
Portable Food Vendors	X	X	X	X	X	A	X
Restaurants/Drive-Through	X	X	X	X	X	X	X
Restaurants	X	X	X	X	X	P	X
Industrial/Manufacturing Uses							
Port facilities for transferring materials from vessels to the shore and temporary staging prior to transportation off-site	X	X	X	X	X	X	P
Excavating, Processing, Removal of Topsoil, Sand, Gravel, Rock or Similar Natural Deposits	X	X	X	SU	X	X	X
Manufacturing Uses	X	X	X	X	X	X	X
Research, Development and Testing Facilities	X	X	X	X	X	X	X
Wholesale Facilities and Operations	X	X	X	X	X	X	X
Wineries – Production	X	X	X	SU	X	X	X
Office Uses							
Office	X	X	X	X	X	P	X
Schools, Commercial	X	X	X	X	X	P	X
Travel Agencies	X	X	X	X	X	P	X
Public/Quasi-Public Uses							
Churches/Clubs or Cultural Institutions	X	X	X	SU	P	P	X
Public Park	SU	P	P	P	P	P	P
Golf Course	X	X	SU	SU	P	P	X
General Park O&M Facility	X	X	SU	SU	P	X	X
Hospitals	X	X	X	X	SU	X	X
Passive Open Space Use	P	P	P	P	P	P	P

Land Use	Natural	Recreation Conservancy	Recreation	Rural	Residential	Waterfront	Industrial Conservancy
Power Transmission and Irrigation Wasteway Easements and Utility Uses	SU	SU	SU	P	P	P	P
Electrical Substations	X	X	X	X	X	X	X
Public Agency Buildings or Facilities	X	X	X	P	P	P	X
Public Campgrounds	X	X		S			X
Schools	X	X	X	P	P	P	X
Schools, Alternative	X	X	X	P	P	X	X
Special Events Including Concerts, Tournaments and Competitions, Fairs, Festivals and Similar Public Gatherings	X	X	P	P	P	P	X
Trail Head Facilities for Equestrian, Pedestrian, or Non-motorized Vehicle	X	P	P	P	P	P	P
Trails for Pedestrian Use Only	P	P	P	P	P	P	P
Trails for Equestrian, or Non-motorized Vehicle Use	SU	P	P	P	P	P	P
Recreational Uses							
Art Galleries or Arcades	X	X	X	X	X	P	X
Boat Mooring Facilities	X	X	X	X	X	P	X
Cinema, Indoor	X	X	X	X	X	P	X
Commercial Recreation, Indoor	X	X	X	X	X	P	X
Commercial Recreation, Outdoor	X	X	X	SU	X	P	X
House Banked Card Rooms	X	X	X	X	X	P	X
Recreational Vehicle Campgrounds	X	X	X	SU	X	X	X
Recreational Vehicle Parks	X	X	X	X	X	X	X
Stable, Public	X	X	X	X	X	X	X
Theater	X	X	X	X	X	P	X

Land Use	Natural	Recreation Conservancy	Recreation	Rural	Residential	Waterfront	Industrial Conservancy
Residential Uses							
Accessory Dwelling Unit	X	X	X	A	A	A	X
Apartment, Condominium (3 or more units)	X	X	X	X	X	P	X
Assisted Living Facility	X	X	X	X	P	P	X
Bed and Breakfast	X	X	X	SU	SU	P	X
Day Care Center	X	X	X	SU	SU	P	X
Dormitories, Fraternities, and Sororities	X	X	X	X	P	P	X
Dwelling, One-Family	X	X	X	P	P	X	X
Dwelling, Two-Family Detached	X	X	X	X	X	P	X
Dwelling Units for a Resident Watchman or Custodian	X	X	X	A	A	A	X
Houseboats	X	X	X	X	X	X	X
Hotels or Motels	X	X	X	X	X	P	X
Nursing or Rest Home	X	X	X	X	X	P	X
Temporary Residence	X	X	X	P	P	P	X
Retail Uses							
Adult Use Establishments	X	X	X	X	X	X	X
Apparel, Book, Drug, Florist or other Specialty Retail	X	X	X	X	X	P	X
Building, Hardware, Garden Supply, Nursery, Feed Stores or Outdoor Sales	X	X	X	X	X	X	X
Food Stores	X	X	X	X	X	P	X
Miscellaneous Uses							
Bus Station, Transfer Station or Terminal	X	X	X	X	X	X	X
Community Festivals and Street Fairs	X	X	P	P	P	P	X
Convention Center	X	X	X	X	X	P	X
Micro- and Macro-Antennas	SU	SU	SU	SU	P	P	SU

Land Use	Natural	Recreation Conservancy	Recreation	Rural	Residential	Waterfront	Industrial Conservancy
Storage in an Enclosed Building	X	X	X	X	A	A	X
Transportation							
Roads and Railroads Serving Shoreline Uses	X	SU	SU	SU	SU	SU	SU
Roads and Railroads Not Serving Shoreline Uses	X	SU	SU	SU	SU	SU	SU
Parking Areas Serving Primary Use within the Shoreline	X	P	P	P	P	P	P
Parking Areas Not Serving Primary Use within the Shoreline	X	X	X	X	X	X	X
Parking as a Principal Use	X	X	X	X	X	X	X
Utilities							
Public and private utility distribution serving shoreline uses, water, sewer, electrical, gas, and communication	X	P	P	P	P	P	P
Public and Private Utility Distribution serving uses within the city	X	P	P	P	P	P	P
Utility Facilities serving uses not within the city	SU	SU	SU	SU	SU	SU	SU
Electrical Transmission of Greater than 50 Kilovolts	SU	SU	SU	SU	SU	SU	SU
Electric Transmission/Distribution Substations	X	X	X	X	X	X	X
Utility Buildings including pump stations	X	SU	SU	SU	SU	SU	SU
Communication Antennas	X	SU	SU	SU	SU	SU	SU
Monopole	X	SU	SU	SU	SU	X	SU
Other							
Structures for Flood Management, including drainage or storage and pumping facilities	X	SU	SU	SU	SU	SU	SU
Fish and Wildlife Resource Enhancement	P	P	P	P	P	P	P
Essential Public Facilities	SU	SU	SU	SU	SU	SU	SU
USES NOT SPECIFIED	SU	SU	SU	SU	SU	SU	SU

26.30.012 Bulk and Dimension Chart

Standard	Natural	Recreation Conservancy	Recreation	Rural	Residential	Waterfront		Industrial Conservancy
Sensitive Area Buffer Water Dependent Use	NA[1]	NA[1]	NA[1]	NA[1]	NA[1]	NA[1]		NA[1]
Sensitive Area Buffer Non Water Dependent Use	As provided by Table 26.60.090 (D). 088(B) Wetland Buffer Widths, Table 26.60.9816.12.440 (B)(9)(f). Riparian Buffer Width							
Minimum building setback from OHWM Water Dependent Use	NA[2]	NA[1, 2]	NA[1]	NA[1]	NA[1]	NA[1]		NA[1]
Minimum building setback from OHWM Non Water Dependent Use	NA[2]	15 feet (except for Residential, which is 25 feet) from the edge of the applicable riparian buffer, or 15 feet (except for Residential, which is 25 feet) from the landward edge of a roadway, canal, levee, paved trail, or parking area, as applicable, as provided in Section/Table 26.60.42[2]						
Minimum Front Yard Setback	As provided by zoning							
Minimum Side Yard Setback	As provided by zoning							
Minimum Rear Yard Setback	As provided by zoning							
Minimum Lot Width – One-Family Attached Dwellings	As provided by zoning							
Minimum Lot Area	As provided by zoning							
Maximum Density – Multifamily Dwellings (units/square feet)	NA	NA	NA	NA	NA	1:1,500		NA
Maximum Lot Coverage	0%	5%	10%	10%	40%	NA		20%
Maximum Building Height	NA[2]	16 feet	35 feet	25 feet	35 feet	35/55 feet[3]		35 feet
Maximum Building Height – Detached Accessory Buildings	NA[2]	16 feet	16 feet	16 feet	16 feet	35 feet		35 feet

1. No Sensitive Area buffer or building setback applies to water dependent elements of a water dependent use.
2. Buildings are not allowed in the Natural Open Space Zoning District.

3. Building height may be increased to up to 55 feet in the Waterfront Environment subject to the provisions of RMC 26.30.013

26.30.013 Provisions for Additional Height in the Waterfront Environment

Structures in the Waterfront Environment may exceed a height of 35 feet based upon a review of the site plan and structure and compliance with the following criteria.

A. Additional open space or a plaza is provided on the site that earns bonus floor area in accordance with RMC 26.30.40.F.2.

B. The planning commission finds that:

1. The increased building height will not obstruct the view of a substantial number of residences on areas adjoining such shorelines;

2. Overriding considerations of the public interest will be served by providing additional public open space and facilities that enhance public enjoyment of the shoreline;

3. The proposed building is aesthetically pleasing in relation to buildings and other features in the vicinity;

4. The building is located a sufficient distance from the Columbia River to avoid creating a visual barrier.

26.30.020 Agriculture.

A. This program shall not restrict lawfully existing agriculture activities that have been discontinued for less than five (5) years. An agricultural use shall not be considered discontinued if it is allowed to lie fallow in which it is plowed and tilled but left unseeded; allowed to lie dormant as a result of adverse agricultural market conditions; or allowed to lie dormant because the land is enrolled in a local, state, or federal conservation program.

B. All new agricultural activities and facilities on land not meeting the definition of agricultural land are governed by this Program and shall observe the Sensitive Area standards and buffer requirements of this Program and the criteria below.

C. Agricultural activities shall follow recognized best management practices that improve or maintain water quality and quantity, reduce soil erosion, maintain, or improve soil conditions, and provide for wildlife habitat. The applicant is encouraged to coordinate with the County Conservation District and the Natural Resources Conservation Service in the development of best management practices for their agricultural activity.

D. New intensive agricultural activities such as animal feeding operations/concentrated animal feeding operations (AFO/CAFOs) and row cropping requiring intensive application of fertilizers, animal waste, herbicides, and pesticides shall be located outside of shoreline jurisdiction, unless the proposed use is within an established agricultural area and no alternative agricultural activity

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is feasible. New intensive agricultural activities shall be implemented in accordance with a farm conservation plan including a monitoring program that assures no net loss of ecological functions.

E. New facilities for liquid manure storage shall be located outside of shoreline jurisdiction unless no alternative location is feasible and a Special use Permit is obtained. New liquid manure storage facilities shall be implemented in accordance with a farm conservation plan including a monitoring program that assures no net loss of ecological functions.

F. New manure spreading operations shall be carried out so that animal wastes do not enter water bodies, wetlands, or groundwater recharge areas.

G. The construction of a barn or similar agricultural structure is exempt from obtaining a substantial development permit, but must comply with the regulations of this program.

26.30.030 Aquaculture.

Aquaculture is the culture of farming of foodfish, shellfish, or other aquatic plants and animals. Potential locations for aquacultural enterprises are relatively restricted due to specific requirements for water quality, temperature, flows, and oxygen content. Policies and regulations for aquaculture, therefore, recognize the necessity for some latitude in the development of this emerging economic water use as well as its potential impact on existing uses and natural systems.

A. Aquacultures is a preferred water-dependent use but may be permitted only if impacts to ecological resources and existing land uses can be mitigated. Aquacultural facilities should be designed and located so as not to spread disease to native aquatic life, or establish new nonnative species which cause significant ecological impacts.

B. Aquaculture activities shall be located so as to not unduly restrict navigation.

C. Aquaculture structures shall be placed in such a manner as to minimize interference with or danger to surface navigation and so as not to impair the aesthetic quality of the shorelines.

D. Aquaculture development shall make reasonable provisions to control nuisance factors such as excessive noise or odor.

E. Aquaculture wastes shall be disposed of in a manner that will prevent degradation of associated upland, wetland, shoreline, or water environments.

F. Aquaculture activities shall make all feasible provisions to maintain the general aesthetic quality of the shoreline

26.30.040 Commercial Development

Shoreline commercial uses, including offices, restaurants, general retail sales, hotels, motels and convention centers, are recognized as being most suitable in the Waterfront Environment already developed at urban intensities. Policies and regulations for these uses encourage developments having a functional dependency on shoreline location and water orientation, and which afford maximum public access, use, and circulation along the waterfront.

A. Commercial development in shoreline areas shall be designed, located, and constructed to achieve no net loss of ecological functions.

B. Preference shall be given to water-dependent commercial uses over non-water-dependent commercial uses. Water-related uses shall be given priority over non-water related uses.

C. Commercial development that is not water-dependent shall not be allowed over water except where it is located within the same building and is accessory to and necessary for a water-dependent use.

D. Non-water-oriented commercial development shall be allowed only when:

1. The use is part of a mixed-use project that includes water-dependent uses and provides a significant public benefit with respect to provision of public access and/or ecological restoration; or

2. Navigability is severely limited at the proposed site, and the commercial use provides a significant public benefit with respect to provision of public access and/or ecological restoration.

E. In areas of the shoreline designated for commercial use, non-water-oriented commercial uses may be allowed on sites physically separated from the shoreline by another property in separate ownership or public road right-of-way.

F. Uses within the Waterfront Environment shall be designed to provide multiple uses that enhance cultural and related commercial facilities to enhance and diversify the public's experience of the shoreline including tourists by providing water-oriented and enjoyment uses and community recreational resources and providing public access and view corridors. Uses in this area must meet the following additional criteria:

1. Development is subject to RMC Chapter 23.48, Site Plan Review, as it may be subsequently amended

2. Public open space for public access and to accommodate water enjoyment uses and other uses allowing public visual access to the waterfront, such as restaurants are a preferred use and may earn bonus floor area in buildings between 35 and 55 feet in height, subject to the following criteria:

a. Public open space in excess of 15% of the area of shoreline jurisdiction on a site may earn 1 square foot of building floor area for each square foot of open space, up to 20,000 square feet, provided the following criteria are met:

i. The open space area must abut the Riverside Trail on at least half its total width

ii. It must be at the elevation of the trail,

iii. It may extend no further than 50 feet from the edge of the trail

iv. It must be accessible to the public at all times

v. It must consist of grass turf or other surface that will accommodate pedestrian foot traffic

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vi. At least one bench or table with chairs open to the public must be provided for every 2,000 square feet of open space

vii. Planting areas for ornamental vegetation not allowing foot traffic are excluded from the area qualifying for bonus floor area

b. Public open space plazas may earn additional bonus floor area, of may earn 4 square feet of building floor area for each square foot of open space, up to 10,000 square feet in addition to any area earned by subsection F.2.a, above, if the facility meets the following criteria:

i. The open space area must abut the Waterfront Trail on at least 20% of its total perimeter

ii. It must be at the elevation of the trail

iii. It may extend no further than 75 feet from the edge of the trail

iv. It must be accessible to the public at all times

v. It must consist of a hard surface of concrete, brick, pavers, or similar materials. Permeable surfaces are encouraged to the extent feasible.

vi. Shade shall be required by trees planted in grates at grade level allowing pedestrian passage over grates at a minimum ratio of one tree per 1,600 square feet of plaza area.

vii. At least one bench or table with chairs open to the public must be provided for every 2,000 square feet of open space

viii. It must be abutted by building frontage at the same elevation as the plaza and with ground floor clear vision glass and door access at a spacing of no less than 50 feet on at least 50% of its total perimeter

ix. At least 50% of the building perimeter must be retail or restaurant use

x. Planting areas for ornamental vegetation at the perimeter of the plaza in areas without clear glass building frontage may be allowed on up to 10 percent of the plaza area if the beds of such landscaping are within 18 inches of the plaza elevation

xi. Additional bonus area of 2 square feet of building floor area for each square foot of open space, up to 2,000 square feet in addition to any area earned by the provisions above may be earned by dedication of an area of outside seating at a restaurant, coffee shop, or similar use. Up to 50 percent of the qualifying bonus area may be devoted to sale of liquor.

c. The administrator may allow interim use of retail or restaurant building frontage for office or other compatible use if the building owner documents a good faith effort to procure retail or restaurant tenants. Such interim use may be approved for a period of up to 3 years and may be renewed upon demonstrating of meeting the same criteria.

3. Public view corridors that provide the public with an unobstructed view of the water from adjacent public streets to the Columbia River shall be provided in the Waterfront Environment subject to the following criteria:

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a. View corridors shall extend from the public street providing access to the site and shall extend to the water's edge.

b. Preferred locations for view corridors are along property lines.

c. Width of view corridors shall be determined based on the potential for providing views in new development and redevelopment and be based on topography, parcel size, and effects on development potential.

d. Development and uses within view corridors shall be limited to prevent obstruction of the corridor.

e. Establishment of a view corridor shall not allow for clearing or removal of shoreline buffer vegetation provided in Critical Area regulations.

f. View corridors shall be recorded as an easement in accordance with the provisions of 26.20.050 Public Access.

26.30.050 Industrial Development and Port Facilities

Policies and regulations for ports and water-associated industrial development are intended to accommodate the particular dependence of those uses on shoreline siting and to ensure that development occurs in a manner that maximizes compatibility with the water and shoreline resources.

A. The area of industrial use designated in this program which is accessible to navigable water is the Port of Benton site in North Richland. This program provides for continued operation of barging facilities and may permit additional water-dependent use directly related to transfer of materials from waterborne conveyance to the land. The portions of the site not used for said water-dependent use shall preserve the generally undeveloped nature of adjacent shoreline areas. Public access shall be provided through the shoreline portion of the site for use when it does not interfere with barge loading or unloading. An alternative route to the west shall be provided for conducting non-motorized traffic around the site when water-dependent use interrupts transit on the trail

B. Industrial and port development shall be located, designed, constructed, and operated in a manner that minimizes impacts to shoreline resources and avoids unnecessary interference with shoreline use by adjacent property owners.

C. Cooperative use of existing port facilities, including docks and piers, shall be encouraged to reduce additional disruption to the shoreline.

26.30.060 Marinas

Marinas are recognized as a use dependent on waterfront location and generally requiring shoreline modification for construction and operation. Marina activities may include facilities for boat launching, moorage, storage, and servicing as well as boat and accessories sales and display and restaurant facilities.

A. These provisions apply to all vessel moorage facilities serving 5 or more vessels.

B. Proposals for new marinas must provide sufficient evidence that existing public boat launches, dry storage and existing and permitted moorage is not adequate to meet regional demand for recreational boating and that development of new marinas would result in fewer environmental impacts than expansion of existing facilities.

C. In order to protect shoreline ecological functions, efficiently use shoreline space, and minimize consumption of water surfaces, boat facilities in order of preference are as follows:

1. Mooring buoys with a small lighter dock to provide access to the buoy.

2. In-water mooring docks. These may be approved only where it is demonstrated that more preferred options are not feasible, and/or it can be demonstrated that in-water mooring docks would result in fewer impacts to shoreline ecological functions and/or enhance public use of the shoreline.

D. Applications for marinas with in-water moorage may be approved by Special Use Permit if it is demonstrated that:

1. Public navigation will not be impeded.

2. The location will not result in displacement of wetlands or interrupt natural processes, erosion, or deposition.

3. Water depths will be adequate without initial or maintenance dredging.

4. The location will not require shoreline armoring to compensate for fluvial processes.

5. The location will not reduce existing public use of the water or shoreline including fishing, swimming, and boating.

6. Adverse water quality impacts will not result from inadequate flushing of moorage or enclosed water areas.

7. Impacts to riparian buffers and nearshore aquatic habitat will be minimized. Impact minimization may require provision of upland buffers with limited corridors for movement between upland and in-water facilities.

8. Setbacks from adjacent non-commercial properties will be adequate to attenuate proximity impacts such as noise and light and glare, and may address scale and aesthetic impacts. Fencing or landscape areas may be required to provide a visual screen.

9. Facilities including piers, floats, boat launches and other elements will be located and designed to minimize changes in hydraulic and fluvial processes, minimize potential flood hazards, and to not limit channel migration in areas where such processes are not currently constrained.

10. Exterior lighting will avoid illuminating nearby properties used for non-commercial purposes and to prevent hazards for public traffic. Methods of controlling spillover light include, but are not limited to, limits on height of structure, limits on light levels of fixtures, light shields, and screening.

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11. Exterior lighting will not adversely impact aquatic species.

12. Adequate provisions are made for restroom, sewage, and solid waste disposal facilities in compliance with applicable health regulations.

13. Access and parking shall not produce traffic hazards, shall not result in excessive noise or other impacts, and shall minimize traffic impacts on nearby streets.

14. On-site parking supply shall be adequate to meet peak demands. Location of parking shall be in accordance with parking standards in this program.

E. Covered moorage is prohibited.

F. Marinas shall provide public access amenities over public aquatic lands equivalent to a minimum 10 percent of over-water coverage and shall provide public walkway access to a public street and may be required to provide public parking including handicapped access.

G. If a marina includes gas and oil handling facilities, such facilities shall be separate from main centers of activity in order to minimize the fire and water pollution hazard, and to facilitate fire and pollution control. Fail safe facilities and procedures for receiving, storing, dispensing, and disposing of oil or hazardous products, as well as a spill response plan, shall be required of new marinas and expansion or substantial alteration of existing marinas. Handling of fuels, chemicals, or other toxic materials must be in compliance with all applicable federal and state water quality laws as well as health, safety, and engineering requirements. Rules for spill prevention and response, including reporting requirements, shall be posted on site.

H. Live-aboard vessels may occupy up to ten (10) percent of the slips at a marina and shall be connected to utilities that provide potable water and wastewater conveyance to an approved disposal facility. Accommodation of additional live-aboard vessels may be approved only by Special Use Permit with demonstration that accommodation of live-aboard vessels will not displace moorage otherwise available for recreational use or lead to a demand for additional moorage facilities.

26.30.070 Mining.

Surface mining is the removal of rock, sand, gravel, and/or minerals from shoreline areas for economic purposes. Excavations are permitted in accordance with the Washington State Surface Mining Act and with RMC 23.42.070.

A. The location, design, and development of any mining operation shall include:

1. Demonstration that mining is dependent on a shoreline location based on evaluation of geologic factors such as the distribution and availability of mineral resources for that jurisdiction, as well as evaluation of need for such mineral resources, economic, transportation, and land use factors.

2. Assurance of no net loss of ecological functions and processes; application of this standard shall include avoidance and mitigation of adverse impacts during operation and evaluation of the reclamation plan required for the site.

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3. Allowance of mining on shorelines shall require a finding that the benefits from mining, including the long term use of the site outweigh adverse impacts on other users or resources taken together.

4. Avoidance of interference with public recreation on the shoreline.

5. Location and operation to provide long term protection of water quality, fish and wildlife, and their habitats.

B. A reclamation plan shall be submitted with each application and shall provide for reclamation of the site compatible with existing and proposed land use as indicated in the Richland Comprehensive Plan and compatible with the Shoreline Environment Designation. Preference shall be given to mining proposals that result in the creation, restoration, or enhancement of habitat for priority species and/or public access and recreation.

C. Regulations applicable to the Shoreline Environment in which the proposed development is located shall be complied with.

26.30.080 Recreation

Recreation is the refreshment of strength and spirits through activities involving physical participation or passive relaxation. Water-related recreation accounts for a significant percentage of all recreational activities in the city of Richland and the state of Washington. Recreational activities intended for public use shall be encouraged at intensities appropriate for the various environments. Priority will be given to those recreational uses which provide appropriate public access to the shoreline.

A. Only those public and private recreational uses that allow general public use shall be permitted on public shorelines of Richland. Recreational development shall be designed to locate non-water-oriented uses upland of water-oriented uses whenever possible.

B. A variety of recreation opportunities and associated facilities are encouraged on the shoreline. Passive uses are most appropriate in areas with more intact natural conditions including facilities for interpretation of natural features and habitat, bird watching and similar uses. Water-dependent and water-enjoyment recreation facilities are a preferred use including boating facilities, water sports, angling, and swimming beaches for areas with less intact ecological functions.

C. Access, circulation, and parking for recreational developments shall comply with the following regulations:

1. Vehicular access points shall be limited to the minimum number necessary for the proposed recreational facility and shall be configured to minimize disturbance of sensitive natural resources. Non-motorized access points shall be provided where feasible.

2. Access to the water's edge from parking areas shall be limited to pedestrian movement, except that marinas and boat launching facilities may be provided with access drives or roads.

3. Circulation within recreational areas shall, as appropriate, include provisions for all modes of transportation. Roadways for motorized vehicles shall be designed and located to take advantage of scenic views, vistas, and points of interest in nonsensitive areas and shall be designed and constructed with consideration of, and sensitivity for, natural features and amenities of the shorelines.

4. Access and circulation shall conform to provisions for road and railroad design and construction as set forth in RMC 26.30.100.

5. Parking areas shall be located on the inland side of all buildings, structures, and recreational uses and shall be developed in accordance with applicable city of Richland parking and landscaping standards.

D. Development plans shall include provisions for the protection and preservation of ecological functions, natural resources, and scenic views and vistas of the shoreline.

E. Recreational facilities shall be designed, constructed, and operated in a manner consistent with the intent of the shoreline environment in which they are located and which does not result in a net loss of shoreline ecological functions.

F. Applications for recreational uses that require the use of fertilizers, pesticides, or other chemical treatments shall include plans demonstrating best management practices to be used to minimize the potential for contamination of surface water and groundwater resources. Non-chemical methods of vegetation management shall be preferred wherever feasible.

G. New over-water structures for recreation use shall be allowed only when:

1. They accommodate water-dependent recreation uses or facilities, or

2. They allow opportunities for substantial numbers of people to enjoy the shorelines of the state, and

3. They are not located in or adjacent to areas of ecological sensitivity, especially aquatic and wildlife habitat areas, and

4. No net loss of ecological functions will be achieved.

H. Private recreation uses and facilities that utilize public aquatic lands shall provide public access as provided in Section 26.20.050 or shall provide improved, compensating public access at other locations.

I. Motorized vehicular use outside of designated roadways and driveways, including the use of all-terrain and off-road vehicles, in the shoreline area is prohibited, except for boat launching and maintenance activities and except where specific areas for such use are set aside and controlled by a public entity.

J. In natural open space areas, the need for trails for ADA access should be balanced with the extent of alteration of the natural environment required to accommodate such facilities.

K. Recreational developments shall comply with all local and state health regulations.

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26.30.090 Residential development

Policies and regulations for residential development are intended to promote use of the shoreline that acknowledges existing residential patterns and allows residential utilization of shoreline areas without resulting in a net loss of ecological function.

A. Single-family residential development is a priority use on the shoreline when developed in a manner consistent with control of pollution and prevention of damage to the natural environment.

B. Residential development in the shoreline shall meet the criteria of no-net-loss of ecological functions in Section 26.20.20 of this program and the preferred sequence for mitigation of impacts. The use shall be located and designed to maintain required buffers and maintain or enhance shoreline ecological functions including shoreline geomorphic processes, water quality, fish and wildlife habitat, and the aquatic food chain in general.

C. New residential development shall cluster dwelling units to provide as little alteration to the natural environment as feasible and shall utilize low impact development (LID) techniques to reduce physical and visual impacts on shorelines.

D. Multi-family residential use is not a priority for location on the shoreline under the Shoreline Management Act and is subject to the preference for water-dependent and water-oriented use. It therefore must meet requirements for providing public benefit through ecological restoration and public access. Multi-family development may not be approved if it displaces existing water-dependent uses. Multi-family development uses may be permitted only where it provides significant public benefit with respect to the objectives of the Act by:

1. Restoration of ecological functions both in aquatic and upland environments that shall provide native vegetation buffers according to the standards provided for Sensitive Areas or in accordance with the Restoration Element of this program; and

2. Provision of public access is required in accordance with RMC 26.20.050.

E. Over-water residences are prohibited

F. New residential development shall assure that the development will not require shoreline stabilization. Prior to approval, geotechnical analysis of the site and shoreline characteristics shall demonstrate that shoreline stabilization is unlikely to be necessary, setbacks from steep slopes, bluffs, landslide hazard areas, seismic hazard areas, and riparian erosion areas shall be sufficient to protect structures during the life of the lots, and impacts to adjacent, downslope, or down-current properties is not likely to occur during the life of lots created.

G. New residential development shall meet all Sensitive Area provisions of this program. Filling of, or into, water bodies or their associated wetlands for the purpose of subdivision or multi-family construction shall not be permitted. New subdivisions, short plats, and large lots shall preserve the required buffer in a protective tract, public or private land trust dedication, or similarly preserved through an appropriate permanent protective mechanism. Each lot owner within the

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subdivision, short plat, or other land division shall have an undivided interest in the tract(s) or protective mechanism created.

H. Residential developments, including subdivisions, and planned unit developments of five (5) or more lots/units shall provide "improved public access for all residents of the development and the general public, in compliance with public access standards contained in Section 26.20.050.

I. All new divisions of land shall record a prohibition on new private individual docks on the face of the plat. An area reserved for shared moorage may be designated if it meets all requirements of this program.

J. All development shall be in compliance with all codes and ordinances of the city of Richland, including applicable subdivision, Sensitive Area and zoning regulations.

26.30.100 Transportation Facilities

A. Roads and Bridges

1. Development of new roads or substantially expanded existing roads shall demonstrate the need for a shoreline location and that no feasible upland alternative outside the shoreline is available;

2. Roads shall cross shoreline areas by the shortest, most direct route feasible to minimize impacts, unless such route would cause significant adverse impacts based on specific local features.

3. The project configuration, design, and related features will minimize alteration of Sensitive Area buffers, avoid impacts on bird and wildlife movement as much as is feasible, fit the existing topography as much as feasible, and minimize alterations to the natural or existing vegetation.

4. New transportation facilities shall be located and designed to avoid the need for shoreline stabilization where feasible. Where demonstrated to be necessary to protect an existing facility that is in imminent danger of loss or substantial damage, new or expanded structural shore stabilization shall provide mitigation of impacts resulting in no net loss of shoreline ecological functions. In cases where substantial shore stabilization is required, relocation of roads further from the shoreline may be required.

5. New or expanded roads will provide public access in accordance with Section 26.20.050 and where they afford scenic vistas, pedestrian viewpoints will be provided.

6. Wetlands shall be avoided whenever feasible. If avoidance is not feasible, bridges shall be utilized when crossing wetlands to avoid obstructing movement of surface and groundwater unless it can be demonstrated that fill and compensatory mitigation will produce equal or greater ecological functions.

7. Road crossings of streams shall utilize bridges rather than culverts to the maximum extent feasible.

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8. Private access roads or driveways providing ingress and egress for individual single-family residences or lots shall be limited to the minimum allowed by the Fire Code.

9. Bridges shall be designed and built of sufficient lateral and vertical clearance to allow the unimpeded passage of flood flows and debris. In wide streamways, bridges shall employ the maximum length of clear spans feasible with pier supports that produce the minimum deflection feasible. Bridge approaches in floodways of any stream shall be constructed on open piling or other measures to allow free water movement.

10. Landscape planting is required along all shoreline roads, parking, and turnout facilities to:

    a. Provide buffers between pedestrian and auto users;

    b. Enhance the shoreline driving experience; and

    c. Enhance and complement potential views of shoreline areas.

11. The City shall not vacate any public right-of-way in a shoreline location until adopting a Comprehensive Public Access plan for the area showing that the subject right-of-way cannot be used as a contributing element in that plan. The City shall vacate a public right-of-way abutting a body water only in compliance with RCW 35.79.035, which allows vacations of streets abutting bodies of water only when:

    a. The vacation will enable acquisition of the property for public purposes;

    b. The street or alley is not suitable for certain purposes (e.g., port, park, education); or

    c. The vacation will enable implementation of a public access plan.

12. In order to improve public access to the shoreline the City shall acquire and/or retain abandoned or unused road or railroad rights-of-way for public access to and/or along the water.

B. Non-Motorized Facilities

1. Non-motorized facilities shall comply with provision for public access facilities in Section 26.20.050.

2. Trails shall be developed consistent with adopted city and regional system plans.

3. Non-motorized facilities shall avoid sensitive features of the shoreline to the extent feasible, including wetlands and fish and wildlife habitat. Facilities shall be placed outside of, or in the outer portions of buffers. Elevated walkways shall be utilized where feasible to cross wetlands and streams.

C. Railroads

1. Railroad improvement requiring right-of-way expansion within the shoreline shall demonstrate that there is no feasible alternative outside of shoreline jurisdiction.

2. Expansion of existing railroad facilities within existing rights-of-way (additional track or other features) must demonstrate the need for a shoreline location and that no feasible upland

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alternative outside shoreline jurisdiction is feasible. New tracks shall be placed upland of existing tracks if feasible and may require relocation of existing tracks.

3. The project shall be designed to minimize alteration of Sensitive area buffers, to fit the existing topography as much as feasible, and minimize alterations to the natural or existing topography.

4. Wetlands shall be avoided whenever feasible. Bridges shall be utilized when crossing wetlands to avoid obstructing movement of surface and groundwater unless it can be demonstrated that fill and compensatory mitigation will produce equal or greater ecological functions.

5. Trails and shoreline access should be provided with facilities to safely cross railroads, to enhance regional non-motorized circulation, and improve public access to the shoreline. Any proposal to add tracks to an existing corridor shall include additional crossings of the rail corridor to make a proportional contribution to meeting an ultimate goal of at least one crossing every 2,500 feet.

6. Criteria for road crossings of streams and shoreline stabilization shall apply to railroads.

D. Parking

1. Parking facilities in shorelines are not a preferred use and shall be allowed only as necessary to support an authorized use. Parking facilities shall be located outside shoreline jurisdiction where possible. Parking in shoreline jurisdiction shall directly serve a permitted shoreline use and shall be located outside of Sensitive Area buffers and as far from the water/land interface as possible.

2. Parking facilities serving individual buildings on the shoreline shall be located landward from the principal building being served. The only exceptions to this would be when the parking facility is within or beneath the structure and adequately screened, or in cases when an alternate location would have less environmental impact on the shoreline and in all cases is prohibited over the water.

3. Parking facilities shall be designed and landscaped to minimize adverse impacts upon adjacent shoreline and abutting properties. Landscaping shall comply with RMC 23.54 and in addition landscaping between parking areas and public access shall provide effective screening within three years of project completion.

26.30.101 Utilities

A. New or substantially expanded utilities serving uses within the City may be located within shoreline jurisdiction only if:

1. The facility is needed within the shoreline jurisdiction to support permitted shoreline activities;

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2. No feasible upland alternative exists based on analysis of system options that assess the potential for alternative routes outside shoreline jurisdiction or is set back further from the land/water interface; and

B. Regional facilities that serve uses outside the City and all electric transmission facilities with a capacity greater than 50 kW shall demonstrate, based on an analysis of alternative routes and technology, that:

1. No upland alternative route is feasible,

2. Utilization of existing corridors is not feasible, including expansion or replacement of existing facilities, if new corridors are proposed,

3. A location within designated industrial environments or existing transportation corridors is not feasible,

4. The proposal has the least feasible adverse impact on the natural environment, and

5. The location and design of the facility has the least feasible change in the existing character of the shoreline views enjoyed by residences or from public access facilities, and will not obstruct scenic vistas.

C. Linear facilities consisting of pipelines, sewers, cables and other facilities roughly parallel to the shoreline shall be discouraged except where no other feasible alternative exists. At the time of replacement of such facilities that are close to their lifespan, or when such facilities are expanded, relocation outside of the shoreline may be required as if they were new facilities When permitted, design shall assure that maintenance of the facilities does not result in a net loss of shoreline ecological functions or significant impacts to other shoreline resources and values.

D. Utilities shall be located in the least sensitive portions of a site and outside of natural open space areas, where feasible, and be designed to minimize environmental impact, avoid significant natural, historic, archaeological, or cultural sites to the maximum extent feasible, and mitigate unavoidable impacts.

E. Utilities, where permitted, shall meet the following design criteria:

1. Facilities should occupy as little of the shoreline as feasible and should be located in existing rights of way and if possible should share existing facilities where feasible. Utility installation parallel to the shoreline should be avoided to the maximum extent feasible. Utilities shall cross the shoreline area by the shortest most direct route, unless such route would cause substantial significant environmental damage.

2. Utilities shall be located and designed to minimize alterations to the natural environment, be located outside of natural open space areas, where feasible, and fit the existing topography as much as possible and should be designed to minimize and mitigate environmental impact.

3. Facilities shall be located and designed to minimize introducing elements that change the existing character of the shoreline obstruct views enjoyed by residences or from public access facilities, or obstruct scenic vistas.

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4. Utility crossings of water bodies shall be attached to bridges or located in other existing facilities, if feasible. If new installations are required to cross water bodies or wetlands they should avoid disturbing banks and streambeds and shall be designed to avoid the need for shoreline stabilization. Crossings shall be tunneled or bored where feasible. Installations shall be deep enough to avoid failures or need for protection due to exposure due to stream bed mobilization, aggregation, or lateral migration. Underwater utilities shall be placed in a sleeve if feasible to avoid the need for excavation in the event of the need for maintenance or replacement.

F. New electrical distribution lines within the shoreline shall be placed underground. Distribution lines that cross water or other Sensitive areas may be allowed to be placed above ground if:

1. Underground installation would substantially disrupt ecological functions and processes of water bodies and wetlands, and horizontal drilling or similar technology that does not disturb the surface is not feasible;

2. Visual impacts are minimized to the extent feasible; and

3. If overhead facilities require that native trees and other vegetation in a Sensitive Areas buffer cannot be maintained in a natural condition, compensatory mitigation shall be provided on or off-site.

G. Stormwater, wastewater, or water supply pump stations, and stormwater discharge facilities such as dispersion trenches, level spreaders, and outfalls may be located in the shoreline jurisdiction if:

1. Due to topographic or other physical constraints there are no feasible locations for these facilities outside the shoreline;

2. The facility minimizes and compensates for impacts to Sensitive Area buffers; and

3. Any discharge facility is designed and maintained to prevent erosion or other adverse impacts.

H. Construction shall be designed to protect the shoreline against erosion, uncontrolled or polluting drainage and other factors detrimental to the environment, both during and after construction.

I. Roadways or other facilities to access utility installations within Sensitive Area buffers shall be no wider than needed to construct, maintain, or repair the utility.

J. Facilities involving buildings, such as pump stations, electrical substation, or other facilities, when permitted and shall be in scale with surrounding development, architecturally compatible and landscaped to assure compatibility with natural features, public access facilities, and adjacent uses.

K. Public Access: Utility development shall provide for compatible, multiple uses of sites and rights-of-way through coordination with local government agencies. Such uses include shoreline access in accordance with RMC 26.20.050, trail systems, and other forms of recreation and transportation, providing such uses will not unduly interfere with utility operations, endanger public health and safety, or create a significant and disproportionate liability for the owner.

26.40 Shoreline Modification Regulations

26.40.010 Shoreline Stabilization

Shoreline stabilization includes actions taken to address erosion impacts to property and dwellings, businesses, or structures caused by natural processes, such as current, flood, tides, wind, or wave action. These actions include structural and nonstructural methods.

A. New development, including subdivision, shall be located and designed to avoid the need for future shoreline stabilization to the maximum extent feasible. New lots created by subdivision shall not require shoreline stabilization in order for reasonable development to occur. New development on steep slopes shall be set back sufficiently to ensure that shoreline stabilization is unlikely to be necessary during the life of the structure. Proposed development that would require shoreline stabilization which would cause significant impacts to adjacent or down-current properties and shoreline areas shall not be allowed. In all cases, compliance with this criterion shall be documented by geotechnical analysis by qualified professionals.

B. The construction of shoreline protection for the primary purpose of retaining or creating dry land that is not specifically authorized as a part of the permit is prohibited.

C. Shoreline stabilization shall be designed and constructed to avoid stream channel direction modification, realignment, and straightening or result in increased channelization of normal stream flows.

D. New or enlarged structural shoreline stabilization measures for an existing primary structure, including residences, shall not be allowed unless there is conclusive evidence, documented by a geotechnical analysis that the structure is in danger from shoreline erosion caused by natural processes rather than from upland conditions such as poorly managed stormwater or vegetation removal. Normal sloughing, erosion of steep bluffs, or shoreline erosion itself, without a scientific or geotechnical analysis, is not demonstration of need. The geotechnical analysis shall evaluate on-site drainage issues and address drainage problems away from the shoreline edge before considering structural shoreline stabilization. The erosion control structure shall not result in a net loss of shoreline ecological functions.

E. Alternatives for shoreline stabilization shall be based on the following hierarchy of preference:

1. No action (allow the shoreline to retreat naturally), increase building setbacks, and relocate structures.

2. Stabilization constructed of natural materials incorporating measures such as soft shore protection and bioengineering, including beach nourishment, protective berms, or vegetative stabilization.

3. Soft-shore stabilization, as described above, in combination with rigid works, as described below, constructed as a protective measure.

4. Rigid works constructed of artificial materials such as riprap or concrete.

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F. Shoreline stabilization may be permitted to protect a water-dependent development, or single-family residences, when all of the conditions below have been demonstrated to apply and are documented by report by a qualified professional:

1. The erosion is not being caused by upland conditions, such as the loss of vegetation and drainage.
2. Nonstructural measures, such as placing the development further from the shoreline, planting vegetation, or installing on-site drainage improvements, are not feasible or not sufficient.
3. The need to protect primary structures from damage due to erosion is demonstrated through a geotechnical report.
4. The stabilization structure shall not result in a net loss of shoreline ecological functions.
5. Where a geotechnical analysis confirms a need to prevent potential damage to a primary structure, but the need is not as immediate as three years, the analysis may still be used to justify more immediate authorization for shoreline stabilization using bioengineering approaches.

G. Shoreline stabilization may be permitted to protect an existing non-water-dependent development when all of the conditions below are met as documented by report by a qualified professional:

1. The erosion is not being caused by upland conditions, such as the loss of vegetation and drainage.
2. Nonstructural measures, planting vegetation, or installing on-site drainage improvements, are not feasible or not sufficient.
3. The need to protect primary structures from damage due to erosion is demonstrated through a geotechnical report.
4. The affected structure cannot be feasibly located or relocated outside of the area affected by natural shoreline erosion processes.
5. The stabilization structure will not result in a net loss of shoreline ecological functions.
6. Where a geotechnical analysis confirms a need to prevent potential damage, but the need is not as immediate as three years, the analysis may still be used to justify more immediate authorization for shoreline stabilization using bioengineering approaches.

H. Shoreline protection for the restoration of ecological functions or hazardous substance remediation projects pursuant to Chapter 70.105D RCW, shall meet the conditions below and be documented by a qualified professional:

1. Nonstructural measures, planting vegetation, or installing on-site drainage improvements, are not feasible or not sufficient.
2. The erosion control structure will not result in a net loss of shoreline ecological functions.

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I. Replacement of an existing shoreline stabilization structure with a similar structure is permitted if there is a demonstrated need to protect existing primary uses, structures, or public facilities (e.g. roads, bridges, railways, and utility systems) from erosion caused by stream undercutting or wave action. The existing shoreline stabilization structure must be removed from the shoreline as part of the replacement activity. The following conditions must be met and documented by a qualified professional:

1. There is a demonstrated need to protect principal uses or structures from erosion caused by stream geohydraulic processes.
2. The replacement structure is be designed, located, sized, and constructed to assure no net loss of ecological functions.
3. Replacement walls or bulkheads shall not encroach waterward of the ordinary high water mark or existing structure unless the residence was occupied prior to January 1, 1992 and overriding safety or environmental concerns exist. In such cases, the replacement structure shall abut the existing shoreline stabilization structure.
4. Soft shoreline stabilization measures that provide restoration of shoreline ecological functions may be permitted waterward of the ordinary high water mark.
5. For purposes of this subsection, "replacement" means the construction of a new structure to perform a shoreline stabilization function of an existing structure which can no longer adequately serve its purpose. Additions to or increases in size of existing shoreline stabilization measures shall be considered new structures.

J. A publicly funded shoreline stabilization project shall include appropriate provisions for public access to the shoreline, not create barriers to public access if in existence, and incorporate ecological restoration measures if feasible.

K. Gabions (wire mesh filled with concrete or rocks) shall not be used in bulkhead construction where alternatives more consistent with this program are feasible, because of their limited durability and the potential hazard to shore users and the shoreline environment.

26.40.020 Breakwaters, jetties, and groins

A. Breakwaters, jetties, rock weirs, and groins shall only be permitted by Special Use Permit for navigational purposes, water dependent uses, and marinas where water-dependent uses are located waterward of the OHWM, and where protection from strong wave action is essential.

B. Breakwaters, jetties, rock weirs, and groins may be approved only if analysis by a qualified professional demonstrates that erosion and accretion processes, riparian habitat, channel migration, and floodplain functions will not be adversely affected or are mitigated by a specific program implemented over the lifespan of the effect.

C. The design of new breakwaters, groins, and jetties shall incorporate provisions for public access and public fishing if such access is feasible and safe.

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26.40.030 Flood Hazard Management

A. New or substantially altered structural flood hazard reduction measures, such as dikes, levees, berms and similar flood control structures, shall be consistent with basin-wide flood control strategies in regional flood hazard management plans.

B. Flood control structures shall be permitted for the following purposes only, as documented through a geotechnical or geofluvial analysis.

1. They are necessary to protect existing development.

2. Non-structural flood hazard reduction measures are infeasible.

3. Impacts to ecological processes and functions, priority fish and wildlife species and habitats, and the aquatic food chain can be successfully mitigated to assure no net loss of functions.

4. Measures are consistent with an adopted comprehensive flood hazard management plan that evaluates cumulative impacts to the watershed system.

C. Public access shall be provided in accordance with public access policies and regulations of RMC 26.20.050. If the project is publicly funded the design must provide appropriate public access to the shoreline, improve public access to the shoreline, and provide ecological restoration where feasible.

D. Dike and levee design shall, to the maximum extent feasible be:

1. Limited in size to the minimum height required to protect adjacent lands from the predicted flood stage as identified in the applicable comprehensive flood control management plan or as required by FEMA for dike recertification.

2. Placed landward of Fish and Wildlife Conservation Area and wetland buffers unless there is no other feasible alternative to reduce flood hazard to existing development.

3. Located and designed so as to protect and restore the natural character of the stream, avoid the disruption of channel integrity and provide the maximum opportunity for natural floodway functions to take place. Design must consider including levee setbacks to allow for more natural function of floodplains, channel migration zones, off channel habitat and associated wetlands directly interrelated and interdependent with the stream.

4. Designed to incorporate appropriate vegetation management.

E. All flood protection measures shall demonstrate that downstream flooding will not be increased and the integrity of downstream ecological functions will not be adversely affected, including disruption of natural drainage flows and stormwater runoff.

F. Removal of materials from the river channel for flood management purposes may be allowed only as part of an adopted integrated flood control management program and after biological and geomorphological study demonstrates that other flood hazard reduction strategies would not be effective in the absence of gravel removal. Specific studies accompanying the application must demonstrate that adverse flooding, erosion, or other environmental impacts either upstream or

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downstream of extraction sites would not occur or would be mitigated, including analysis of the natural processes of gravel transportation for the river system as a whole.

26.40.040 Clearing and Grading

A. Clearing and grading activities in shoreline areas shall be allowed only in association with a permitted shoreline development and shall be limited to the minimum extent necessary to accommodate shoreline development. Clearing and grading shall retain natural features and functions, including natural topography, to the maximum extent feasible.

B. Fill is restricted in wetlands or Fish and Wildlife Habitat Conservation Areas in accordance with Sensitive Areas regulations.

C. Fill may not be placed in floodways. Fill may be placed in other flood hazard areas only where it is demonstrated that adverse impacts to hydrogeologic processes will be avoided and the provisions of RMC 26.60 are met.

D. Fill below, or waterward, of the ordinary high water mark for any use except ecological restoration requires a Special Use Permit. Fill may be placed below OHWM only when it is demonstrated as necessary to:

1. Accomplish an aquatic habitat restoration plan;
2. Correct the adverse results of past shoreline modification that has disrupted natural stream geomorphic conditions and adversely affected aquatic or terrestrial habitat;
3. Provide for cleanup and disposal of contaminated sediments as part of an interagency environmental clean-up plan;
4. Expand or alter transportation facilities of statewide significance currently located on the shoreline and then only upon a demonstration that alternatives to fill are not feasible.
5. Create water dependent recreational facilities open to the public.

26.40.050 Dredging and Dredge Material Disposal

A. Dredging shall be permitted only:

1. For flood control purposes, as part of an adopted regional flood control plan;
2. In conjunction with a water-dependent use of water bodies or adjacent shorelands where channel modification is essential to the water dependent use;
3. As part of an approved habitat improvement project;
4. In conjunction with a bridge, navigational structure, water, or wastewater treatment facility for which there is a documented public need and where other feasible sites or methods are not feasible.

B. New dredging shall be permitted only where it is demonstrated by a report by a qualified professional that it will avoid adverse impacts to water quality, Fish and Wildlife Habitat

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Conservation Areas and other Sensitive Areas, flood holding capacity, natural drainage and water circulation patterns, significant plant communities, prime agricultural land, and public access to shorelines. When such impacts are unavoidable, they shall be minimized and mitigated such that they result in no net loss of ecological functions.

C. New development siting and design should avoid the need for new and maintenance dredging.

D. During a low water season, removal of a portion of an accretion point bar below OHWM but above the water level at the time of operation may be permitted as a Special Use for flood control purposes as follows:

1. It is identified as an element of an adopted integrated flood control management program that demonstrates that other flood hazard reduction strategies would not be effective in the absence of material removal, and is in accordance with RMC 26.40.030.F.

2. Specific studies accompanying the application must demonstrate that adverse flooding, erosion, or other environmental impacts would not occur or would be mitigated either upstream or downstream of extraction sites, including the natural processes of gravel transportation for the river system as a whole.

E. Dredge material disposal shall be permitted only at locations where it is demonstrated by analysis by a qualified professional that the disposal will not result in significant or ongoing adverse impacts to water quality, Sensitive Areas, flood holding capacity, natural drainage and water circulation patterns, prime agricultural land, or public access to shorelines. When such impacts are unavoidable, they shall be minimized and mitigated such that they result in no net loss of functions.

F. Disposal of dredge material within Fish and Wildlife Habitat Conservation Areas (FWHCA), wetlands, within a floodplain or within a river's channel migration zone shall be allowed only where alternative disposal sites are not feasible. In the limited instances where it is allowed, such disposal shall require a Special Use Permit. Applicants shall demonstrate that: -

1. The proposed dredge materials disposal site is subject to an allowed use under this program that:

   a. Is an element of an approved restoration plan for aquatic or upland fish and wildlife habitat.

   b. Will create, expand, rehabilitate, or enhance a beach that provides public recreation opportunities that is permitted under this program;

   c. If on private land, the site will ultimately be suitable for a use permitted by this program or will be subject to buffer or other open space restrictions;

   d. Will affect the smallest feasible land;

2. Sites will be adequately screened from view of local residents or passersby on public right-of-ways to the maximum extent practicable (e.g. a combination of fencing and vegetation).

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3. Sites will be revegetated with appropriate native species as soon as possible to retard erosion and restore wildlife habitat and other Sensitive Areas functions;

4. Shoreline ecological functions and processes will be preserved, including protection of riparian buffers and surface and ground water;

26.40.060 In-stream Structures

A. In-stream structures may be allowed only when the public benefits of such facilities clearly outweighs any loss of ecological processes and functions and only when an analysis of alternatives demonstrates that the proposed location and design would result in less adverse impact than alternative locations and designs.

B. In-stream structures may be approved only for:

1. Water-dependent use where the in-stream structure is essential to operation of the use

2. A project that has received Governor's certification pursuant to chapter 80.50 RCW Energy Facility Siting.

3. A project that has received approval and licensing by the Federal Energy Regulatory Commission

4. Projects that are part of an approved irrigation district plan or are private or corporate irrigation facilities approved by the Washington Department of Fish and Wildlife.

5. A fish or wildlife habitat restoration project approved by the Washington Department of Fish and Wildlife.

C. All in-stream structures shall demonstrate that they result in no net loss of ecological functions and applications shall detail all mitigation measures, include detailed mitigation plans, timetables for implementation, and a monitoring program.

D. In-stream structures and their support facilities shall be located and designed to minimize the need for shoreline defense structures. When shoreline defense structures are demonstrated as necessary, they shall be approved in accordance with Section 26.40.10 Shoreline Stabilization.

E. In-stream structures and associated facilities shall avoid, and where avoidance is not feasible shall mitigate, adverse land use impacts including impacts to public access facilities, publicly owned lands or waters used for recreation, and public and private recreation facilities. Impacts to be avoided include the visual impact of the structure or facilities, the intrusion of roads or utility corridors into undeveloped area used for recreation, noise and impacts from reduced water flows.

F. In-stream structures shall be designed and constructed to provide public access to and along the shoreline, in accordance with the public access policies and regulations contained in Section 26.20.050. Existing public access and recreational opportunities should be retained, enhanced, or replaced.

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26.50 Permit Administration and Enforcement

26.50.001 Administrator.

The deputy city manager for community and development services or his designee shall administer and be responsible for the enforcement of the Richland shoreline master program.

26.50.010 Permit requirements.

A. Substantial developments proposed on shorelines of Richland shall be allowed subject to the issuance of a permit from the City of Richland. Applications for Substantial Development Permit, Special Use Permit, and Variance shall be required to comply with the permit review provisions established by the State of Washington (Chapter 173-27 WAC) and the City of Richland and shall be accompanied by a standard fee as set forth in the schedule of fees in RMC 19.80. Application forms containing the information required by WAC 173-27-180 shall be provided by the Shoreline Administrator.

B. Shoreline permits shall be classified Type I or Type II permit applications according to the criteria established in RMC 19.20.010.

1. Decision authority for Shoreline Substantial Development Permits meeting the criteria for Type I permit applications shall rest with the Administrator.

2. Decision authority for Shoreline Substantial Development Permits classified as Type II permit applications and all Special Use Permits shall rest with the Planning Commission.

3. Decision authority for shoreline Variances shall rest with the Planning Commission.

C. Application for a Substantial Development Permit or Special Use Permit shall be considered a request for Site Plan Approval as outlined in RMC 23.48.

26.50.011 Coordination with Other Agencies

The City will coordinate on issues relating to ecological conditions, functions, and processes and on wetland and ordinary high water delineations with the Washington State Department of Ecology, the Department of Natural Resources, and the Department of Fish and Wildlife, as well as other agencies with permit authority over a project to the extent that agencies are timely in their response and coordination does not unduly extend review times.

26.50.012 Development Compliance

A. All uses and developments within the jurisdiction of the Shoreline Management Act shall be planned and carried out in a manner that is consistent with this Program and the policies of the Act as required by RCW 90.58.140(1), regardless of whether a Shoreline Substantial Development Permit, Statement of Exemption, Shoreline Variance, or Shoreline Special Use Permit is required. The City shall ensure compliance with the provisions of this Program for all permits and approvals processed by the City.

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B. Regulation of private property to implement any Program goals such as public access and protection of ecological functions must be consistent with all relevant constitutional and other legal limitations. These include, but are not limited to, property rights guaranteed by the United States Constitution and the Washington State Constitution, applicable federal and state case law, and state statutes, such as RCW 34.05.328 and 43.21C.060. An applicant requesting specific accommodation of constitutional or other legal limits in the application of standards and criteria of this Program must do so in application materials. The decision maker shall address such requests in specific findings.

C. Policies and provisions of this program and RCW 90.58 including the permit system, shall apply to all nonfederal developments and uses undertaken on federal lands and on lands subject to nonfederal ownership, lease or easement, even though such lands may fall within the external boundaries of a federal ownership.

D. In reviewing all permits, consideration shall be given to the cumulative impact of existing development, approved but not yet constructed development, and the likelihood of additional requests for like actions to the extent such uses are allowed in an area and development trends indicate a reasonable likelihood of occurrence. The city shall track, and periodically evaluate the cumulative effects of all project review actions in shoreline areas.

E. Compliance with the provisions of this chapter does not constitute compliance with other federal, state, and local regulations and permit requirements that may be required (for example, Hydraulic Permit Act (HPA) permits, U.S. Army Corps of Engineers Section 404 permits, Washington State Department of Ecology Water Quality Certification (Section 401) National Pollution Discharge Elimination System permits). The applicant is responsible for complying with these requirements, apart from the process established in this chapter.

26.50.020 Exemptions from Substantial Development Permit

A. A substantial development permit shall be required for all proposed use and development of shorelines unless the proposal is specifically exempt pursuant to RCW 90.58.140(1).

B. The following shall not be considered substantial developments for the purpose of this Master Program and are exempt from obtaining a Shoreline Substantial Development Permit (SSDP), provided that any additional exemptions established by legislative amendment of the statute shall constitute exemptions without amendment to this code. An exemption from an SSDP is not an exemption from compliance with the Act or the Shoreline Master Program, or from any other regulatory requirements. To be authorized, all uses and developments must be consistent with the policies and provisions of the applicable master program and the Shoreline Management Act. A use or development exempt from a Shoreline Substantial Development Permit may require a Special Use Permit or a Variance.

1. Governor's Certification: Any project with a certification from the Governor pursuant to Chapter 80.50 RCW.

2. Projects valued at or below the amount established by RCW 90.58.030(3) (e) as amended for consumer price index inflations.

3. Maintenance and Repair: Normal maintenance or repair of existing structures or developments, including damage by accident, fire, or elements.

    a. "Normal maintenance" includes those usual acts to prevent a decline, lapse, or cessation from a lawfully established condition.

    b. "Normal repair" means to restore a development to a state comparable to its original condition, including but not limited to its size, shape, configuration, location and external appearance, within a reasonable period after decay or partial destruction, except where repair causes substantial adverse effects to the shoreline resource or environment.

    c. Replacement of a structure or development may be authorized as repair where such replacement is the common method of repair for the type of structure or development and the replacement structure or development is comparable to the original structure or development including, but not limited to, its size, shape, configuration, location and external appearance and the replacement does not cause substantial adverse effects to shoreline resources or environment.

4. Emergency Construction: Emergency construction necessary to protect property from damage by the elements.

    a. An "emergency" is an unanticipated and imminent threat to public health, safety, or the environment which requires immediate action within a time too short to allow for full compliance with the Shoreline Master Program.

    b. Emergency construction does not include development of new permanent protective structures where none previously existed. Where new protective structures are deemed to be the appropriate means to address the emergency situation, upon abatement of the emergency situation, the new structure shall be removed or any permit which would have been required, absent an emergency, pursuant to chapter 90.58 RCW, chapter 173 -27 WAC or this Shoreline Program shall be obtained.

    c. All emergency construction shall be consistent with the policies of chapter 90.58 RCW and the Shoreline Master Program.

    d. In general, flooding or other seasonal events that can be anticipated and may occur, but that are not imminent, are not an emergency.

5. Agricultural Construction or Practices: Construction and practices normal or necessary for farming, irrigation, and ranching activities, including agricultural service roads and utilities on shorelands, and the construction and maintenance of irrigation structures, including but not limited to head gates, pumping facilities, and irrigation channels. A feedlot of any size, all processing plants, other activities of a commercial nature, alteration of the contour of the shorelands by leveling or filling, other than that which results from normal cultivation, shall not be considered normal or necessary farming or ranching activities. A feedlot shall be an

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enclosure or facility used or capable of being used for feeding livestock hay, grain, silage, or other livestock feed, but shall not include land for growing crops or vegetation for livestock feeding and/or grazing, nor shall it include normal livestock wintering operations.

6. Construction of Single-Family Residence and Accessory Buildings: Construction on shorelands by an owner, lessee or contract purchaser of a single family residence for his own use or for the use of his family, which residence does not exceed a height of 35 feet above average grade level as defined in WAC 173-27-030, and which meets all requirements of the State agency or local government having jurisdiction thereof, other than requirements imposed pursuant to this Section.

    a. "Single family" residence means a detached dwelling designed for and occupied by one (1) family including those structures and developments within a contiguous ownership which are a normal appurtenance. An "appurtenance" is necessarily connected to the use and enjoyment of a single family residence and is located landward of the OHWM and the perimeter of a wetland.

    b. Construction authorized under this exemption shall be located landward of the OHWM.

7. Construction of Non-Commercial Docks: Construction of a dock, including a community dock designed for pleasure craft only, for the private noncommercial use of the owner, lessee, or contract purchaser of single and multi-family residences. This exception applies if

    a. The fair market value of the dock does not exceed ten thousand dollars ($10,000.00); however, if subsequent construction having a fair market value exceeding two thousand five hundred dollars ($2,500.00) occurs within five (5) years of completion of the prior construction, the subsequent construction shall require a substantial development permit; and

    b. A dock is a landing and moorage facility for watercraft and does not include recreational decks, storage facilities, or other appurtenances.

    c. The dock meets all requirements of this code. A private dock generally is prohibited.

8. Construction Authorized by the Coast Guard: Construction or modification, by or under the authority of the Coast Guard or a designated port management authority, of navigational aids such as channel markers and anchor buoys.

9. Operation, Maintenance, or Construction Related to Irrigation: Operation, maintenance, or construction of canals, waterways, drains, reservoirs, or other facilities that now exist or are hereafter created or developed as part of an irrigation system for the primary purpose of making use of system waters, including return flow and artificially stored groundwater for the irrigation of lands.

10. Marking of Property Lines on State-Owned Lands: The marking of property lines or corners on State-owned lands when such marking does not interfere with the normal public use of the surface of the water.

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11. Operation and Maintenance of Agricultural Drainage or Dikes: Operation and maintenance of any system of dikes, ditches, drains, or other facilities existing on September 8, 1975 which were created, developed, or utilized primarily as a part of an agricultural drainage or diking system.

12. Activities Necessary for Permit Application: Site exploration and investigation activities that are prerequisites to preparation of an application for development authorization under the Shoreline Master Program, if:

    a. the activity does not interfere with the normal public use of the surface waters;

    b. the activity will have no significant adverse impact on the environment including, but not limited to, fish, wildlife, fish or wildlife habitat, water quality, and aesthetic values;

    c. the activity does not involve the installation of a structure, and upon completion of the activity the vegetation and land configuration of the site are restored to conditions existing before the activity;

    d. a private entity seeking development authorization under the Shoreline Master Program first posts a performance bond or provides other evidence of financial responsibility to the Administrator to ensure that the site is restored to pre-existing conditions; and

    e. the activity is not subject to the permit requirements of RCW 90.58.550.

13. Removal or Control of noxious Weeds: The process of removing or controlling an aquatic noxious weed, as defined in RCW 17.26.020, through the use of an herbicide or other treatment methods applicable to weed control that are recommended by a final environmental impact statement published by the Department of Agriculture or the Department of Ecology jointly with other State agencies under chapter 43.21C RCW.

14. Watershed Restoration Projects: Watershed restoration projects as defined below:

    a. "Watershed restoration project" means a public or private project authorized by the sponsor of a watershed restoration plan that implements the plan or a part of the plan and consists of one or more of the following activities:

        i. A project that involves less than ten (10) miles of stream reach, in which less than twenty five (25) cubic yards of sand, gravel, or soil is removed, imported, disturbed, or discharged, and in which no existing vegetation is removed except as minimally necessary to facilitate additional plantings.

        ii. A project for the restoration of an eroded or unstable stream bank that employs the principles of bioengineering, including limited use of rock as a stabilization only at the toe of the bank, and with primary emphasis on using native vegetation to control the erosive forces of flowing water.

        iii. A project primarily designed to improve fish and wildlife habitat, remove or reduce impediments to migration of fish, or enhance the fishery resource available for use by all of the citizens of the State, provided that any structure other than a bridge or culvert or in-stream habitat enhancement structure associated with the project is less

than two hundred (200) square feet in floor area and is located above the OHWM of the stream.

b. "Watershed restoration plan" means a plan developed or sponsored by a state department, a federally recognized Indian Tribe, a City, or a conservation district, for which agency and public review has been conducted pursuant to chapter 43.21C RCW, the State Environmental Policy Act. The watershed restoration plan generally contains a general program and implementation measures or actions for the preservation, restoration, re-creation, or enhancement of the natural resources, character, and ecology of a stream, stream segment, drainage area, or watershed.

15. Projects to Improve Fish and Wildlife Passage or Habitat: A public or private project, the primary purpose of which is to improve fish or wildlife habitat or fish passage, when all of the following apply:

a. The project has been approved in writing by the Department of Fish and Wildlife as necessary for the improvement of the habitat or passage and appropriately designed and sited to accomplish the intended purpose.

b. The project has received hydraulic project approval by the Department of Fish and Wildlife pursuant to chapter 75.20 RCW.

c. The Administrator has determined that the project is consistent with this Master Program.

16. Hazardous Substance Remediation: Hazardous substance remedial actions pursuant to WAC 173-27-040(3).

17. Projects on Lands Not Subject to Shoreline Jurisdiction Prior to Restoration: Actions on land that otherwise would not be under the jurisdiction of the Shoreline Management Act except for a change in the location of OHWM or other criteria due to a shoreline restoration project creating a landward shift in the ordinary high water mark that brings the land under the jurisdiction of the Act approved in accordance with RMC 26.50.140.

C. All of the above exemptions are subject to the following regulations:

1. Exemptions shall be construed narrowly. Only those developments that meet the precise terms of one or more of the listed exemptions may be granted exemptions from the substantial development permit process.

2. The burden of proof that a development or use is exempt is on the applicant/proponent of the exempt development action.

3. If any part of a proposed development is not eligible for exemption, then a Substantial Development Permit or Special Use Permit is required for the entire project.

26.50.021 Exemption Procedures

A. A project requiring a permit from the City and subject to an exemption to a shoreline substantial development permit shall be reviewed under the criteria of the underlying permit with an

additional finding recorded by the administrator addressing the grounds under which the permit is exempt.

B. Any person claiming exemption from the permit requirements of this Master Program as a result of the exemptions specified in this Section may make application for an exemption certificate to the administrator in the manner prescribed by the City.

C. Any project for which Ecology is designated as the coordinating agency for the state with regard to permits issued by the U.S. Army Corps of Engineers. The City shall transmit an exemption certificate addressed to the applicant and the Department of Ecology, whenever a development is subject to one or more of the following federal permit requirements:

1. A U.S. Army Corps of Engineers section 10 permit under the Rivers and Harbors Act of 1899; (The provisions of section 10 of the Rivers and Harbors Act generally apply to any project occurring on or over navigable waters. Specific applicability information should be obtained from the Corps of Engineers.) or

2. A section 404 permit under the Federal Water Pollution Control Act of 1972. (The provisions of section 404 of the Federal Water Pollution Control Act generally apply to any project which may involve discharge of dredge or fill material to any water or wetland area. Specific applicability information should be obtained from the Corps of Engineers.)

3. The letter shall indicate the specific exemption provision from WAC 173-27-040 that is being applied to the development and provide a summary of the local government's analysis of the consistency of the project with the master program and the act.

D. The City may attach conditions to the approval of exempted developments and/or uses as necessary to assure consistency of any project with the Shoreline Management Act and this Shoreline Master Program.

26.50.030 Shoreline Permit Application Procedures

In addition to the public notice requirements of Title 19 Development Regulation Administration the following notice shall be provided for each application for a shoreline management substantial development, special use, or variance permit.

A. Within fourteen days after the city has made a determination of completeness on the project permit application the city shall issue public notice including

1. The date of application, the date of the notice of completion for the application, and the date of the notice of application;

2. A description of the proposed project action and a list of the project permits included in the application and, if applicable, a list of any studies requested under RCW 36.70B.070, 36.70B.090, and WAC 173-27-180;

3. The identification of other permits not included in the application to the extent known by the local government;

4. The identification of existing environmental documents that evaluate the proposed project, and, if not otherwise stated on the document providing the notice of application, such as a city land use bulletin, the location where the application and any studies can be reviewed;

5. A statement of the public comment period, which shall be not less than thirty days following the date of notice of application,

6. A statement of the right of any person to comment on the application, receive notice of and participate in any hearings, request a copy of the decision once made, and any appeal rights. Public comments shall be accepted at any time prior to the closing of the record of an open record hearing, if any, or, if no open record hearing is provided, prior to the decision on the project permit;

7. The date, time, place, and type of hearing, if applicable and scheduled at the date of notice of the application;

8. A statement of the preliminary determination, if one has been made at the time of notice, of those development regulations that will be used for project mitigation and of consistency; and

9. Any other information determined appropriate by the administrator.

B. Public notice shall include:

1. Mailing of the notice to the latest recorded real property owners as shown by the records of the county assessor within at least three hundred feet of the boundary of the property upon which the development is proposed

2. Posting on the property.

3. Publication at least once in the official newspaper of the city.

4. If an open record public hearing is required, a notice shall be provided at least fifteen (15) days prior to the hearing.

26.50.040 Approval Criteria

In order to approve any development within SMP jurisdiction, the City must find that a proposal is consistent with the following criteria in addition to the requirements of RMC Title 19, Permit Administration.

A. Conformance with the Shoreline Management Act of 1971, as amended;

B. General conformance with the goals for the shoreline program, the general development policies for the plan elements, and the applicable policy statements for the use activity and the shoreline environment;

C. Compliance with use regulations of the Shoreline Master Program appropriate to the shoreline designation and the type of use or development proposed, particularly the preference for water-oriented uses, subject to liberal construction to give full effect to the objectives and purposes for

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which they have been enacted. If a non-water-oriented use is approved, the decision maker shall enter specific findings documenting why water-oriented uses are not feasible.

D. Compliance with bulk and dimensional regulations of the Shoreline Master Program appropriate to the shoreline designation and the type of use or development proposed, except those bulk and dimensional standards that have been modified by approval of a shoreline variance.

E. Consideration of the recommendations and comments of the Richland parks and recreation commission, as the proposed development will affect and be affected by the goals and objectives of City plans for parks, trails, and open space;

F. General conformance with the provisions of the Richland comprehensive plan;

G. Consideration of provisions for facilities and improved designs to accommodate and encourage use by the physically handicapped;

H. Compliance with the State Environmental Policy Act (SEPA) RCW 43.21C; and

I. Compliance with applicable provisions of the Richland Municipal Code.

26.50.050 Special Use Permit

A. Certain uses are indicated in the use chart as being permitted subject to the granting of a special use permit. The purpose of a special use permit is to provide greater flexibility in administering the use regulations of the shoreline program to accommodate certain uses which, by nature of use, intensity, or impact on an area, cannot be permitted outright within a shoreline environment in a manner consistent with the policies of RCW 90.58.020. In authorizing a conditional use, special conditions may be attached to the permit by local government or the Department of Ecology to prevent undesirable effects of the proposed use and/or to assure consistency of the project with the act and the local master program. (A Special Use permit is the same as a Conditional Use in WAC 172-27-160.)

B. Applications for special use permits for development on shorelines shall be considered a request for site plan approval and shall also be required to observe the permit application review procedure set forth in this program.

C. Applicants shall disclose as part of the permit process:

1. Any applicable federal, state or local regulatory permit requirements

2. The status of any contact with those agencies having permit jurisdiction over the proposed project and status of any permits that may have been applied for

D. Uses which are classified in this master program as special uses may be authorized provided that the applicant demonstrates all of the following:

1. That the proposed use is consistent with the policies, regulations and standards of RCW 90.58.020 and this master program;

2. That the proposed use will not interfere with the normal public use of public shorelines;

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3. That the proposed use of the site and design of the project is compatible with other authorized uses within the area and with uses planned for the area under the comprehensive plan and shoreline master program;

4. That the proposed use will cause no significant adverse effects to the shoreline environment in which it is to be located; and

5. That the public interest suffers no substantial detrimental effect.

E. In the granting of all special use permits, consideration shall be given to the cumulative impact of additional requests for like actions in the area. For example, if special use permits were granted for other developments in the area where similar circumstances exist, the total of the special uses shall also remain consistent with the policies of RCW 90.58.020 and shall not produce substantial adverse effects to the shoreline environment.

F. Other uses which are not classified or set forth in the applicable master program may be authorized as special uses provided the applicant can demonstrate consistency with the requirements of this section and the requirements for special uses contained in the master program.

G. Uses which are specifically prohibited by the master program may not be authorized pursuant to either subsection (1) or (2) of this section.

26.50.060 Variances

A. A development may be granted which is at variance with the specific bulk, dimensional or performance standards established in the SMP where, owing to extraordinary circumstances relating to the physical character or configuration of property, the literal interpretation and strict application of the criteria established in the SMP would cause undue and unnecessary hardship or thwart the policies set forth in RCW 90.58.020. In all instances the applicant must demonstrate that extraordinary circumstances are present. A variance may be required for a use that does not require a substantial development permit but which may not be approved because it does not comply with the provisions of the SMP.

B. Review of a variance shall be in accordance with RMC Chapter 26.50.050, Special Use Permits.

C. Decision Criteria: The Planning Commission must find each of the following:

1. That the strict application of the bulk, dimensional or performance standards set forth in the applicable master program precludes, or significantly interferes with, reasonable use of the property;

2. That the hardship described in (1) of this subsection is specifically related to the property, and is the result of unique conditions such as irregular lot shape, size, or natural features and the application of the master program, and not, for example, from deed restrictions or the applicant's own actions;

3. That the design of the project is compatible with other authorized uses within the area and with uses planned for the area under the comprehensive plan and shoreline master program and will not cause adverse impacts to the shoreline environment;

4. That the variance will not constitute a grant of special privilege not enjoyed by the other properties in the area;

5. That the variance requested is the minimum necessary to afford relief; and

6. That the public interest will suffer no substantial detrimental effect.

7. In the granting of all variance permits, consideration shall be given to the cumulative impact of additional requests for like actions in the area. For example if variances were granted to other developments and/or uses in the area where similar circumstances exist the total of the variances shall also remain consistent with the policies of RCW 90.58.020 and shall not cause substantial adverse effects to the shoreline environment.

26.50.070 Time Requirements for Shoreline Permits

A. The time requirements of this Section shall apply to all substantial development permits and to any development authorized pursuant to a variance or special use permit authorized under the Shoreline Master Program.

B. No construction pursuant to such permit shall begin or be authorized and no building, grading or other construction permits or use permits shall be issued by the City until 21 days from the date a substantial development permit was filed with the Department of Ecology and the Attorney General, or until all review proceedings are completed as were initiated within the twenty one (21) days of the date of filing. Filing shall occur in accordance with RCW 90.58.140(6) and WAC 173-27-130.

C. No permits and construction pursuant to a special use permit or variance shall begin or be authorized until 21 days from the date of notification of approval by the Department of Ecology, or until all review proceedings are completed as were initiated within the twenty one (21) days of the date of filing. Filing shall occur in accordance with RCW 90.58.140(6) and WAC 173-27-130.

D. Unless a different time period is specified in the shoreline permit as authorized by RCW 90.58.143, construction activities, or a use or activity for which a permit has been granted pursuant to this Master Program, must be commenced within two (2) years of the effective date of a shoreline permit, or the shoreline permit shall terminate and a new permit shall be necessary. However, the administrator may authorize a single extension for a period not to exceed one year based on reasonable factors if a request for extension has been filed with the City before the expiration date and notice of the proposed extension is given to parties of record and the Department of Ecology. Construction activities or commencement of construction means that construction applications must be submitted, permits must be issued, and foundation inspections must be approved and completed.

E. A permit authorizing construction shall extend for a term of no more than five (5) years after the effective date of a shoreline permit, unless a longer period has been specified pursuant to RCW 90.58.143 and Subsection F of this Section. If an applicant files a request for an extension prior to expiration of the shoreline permit, the administrator shall review the permit and upon a showing of good cause may authorize a single extension of the shoreline permit for a period of up to one year. Otherwise said permit shall terminate. Notice of the proposed permit extension shall be given to parties of record and the Department of Ecology. To maintain the validity of a shoreline permit, it is the applicant's responsibility to maintain valid construction permits in accordance with adopted Building Codes.

F. If it is determined that standard time requirements of Subsections D and E should not be applied, the Decision Maker, upon a finding of good cause, may establish shorter time limits, provided that as a part of action on a special use or variance permit the approval of the Department of Ecology shall be required. "Good cause" means that the time limits established are reasonably related to the time actually necessary to perform the development on the ground and complete the project that is being permitted.

G. For purposes of determining the life of a shoreline permit, the effective date of a substantial development permit, shoreline special use permit, or shoreline variance permit shall be the date of filing as provided in RCW 90.58.140(6). The permit time periods do not include the time during which a use or activity was not actually pursued due to the pendency of appeals or legal actions, or due to the need to obtain any other government permits and approvals for the development that authorize the development to proceed.

H. It is the responsibility of the applicant to inform the Administrator of the pendency of other permit applications filed with agencies other than the City, and of any related administrative or legal actions on any permit or approval. If no notice of the pendency of other permits or approvals is given to the City prior to the expiration date established by the shoreline permit or the provisions of this Section, the expiration of a permit shall be based on the effective date of the shoreline permit.

I. If the granting of a shoreline permit by the City is appealed to the Shoreline Hearings Board, and the Shoreline Hearings Board has approved the granting of the permit, and an appeal for judicial review of the Shoreline Hearings Board decision is filed, construction authorization may occur subject to the conditions, time periods, and other provisions of RCW 90.58.140(5)(c).

26.50.080 Land Division

Prior to approval of any land division, such as short subdivisions, preliminary long plats, and boundary line adjustments within shoreline jurisdiction, the City shall document compliance with bulk and dimensional standards as well as policies and regulations of the Shoreline Master Program and attach appropriate conditions and/or mitigating measures to such approvals to ensure the design, development activities, and future use associated with such lands are consistent with the Shoreline Master Program. A prohibition on individual private docks shall be imposed on all land divisions.

26.50.090 Construction Permit Compliance

For all development within shoreline jurisdiction, the Building Official shall not issue a construction permit for such development until compliance with the Shoreline Master Program has been documented. If a shoreline substantial development permit is required, no permit shall be issued until all comment and appeal periods have expired. Any permit issued by the Building Official for such development shall be subject to the same terms and conditions that apply to the shoreline permit.

26.50.100 Rulings to State

Any ruling on an application for a substantial development permit under authority of this Master Program, whether it is an approval or denial, shall, with the transmittal of the ruling to the applicant, be filed concurrently with the Department of Ecology and the Attorney General by the Administrator. Filing shall occur in accordance with RCW 90.58.140(6) and WAC 173-27-130.

26.50.110 Appeals

Any person aggrieved by the granting, denying, or rescinding of a permit on shorelines of the state pursuant to RCW 90.58.140 may seek review from the shorelines hearings board by filing a petition for review within twenty-one days of the date of receipt of the decision as provided for in RCW 90.58.140(6).

26.50.120 Rescission of Permits

A. Any shoreline permit issued under the terms of this Master Program may be rescinded or suspended upon a finding that a permittee has not complied with conditions of the permit.

B. Such rescission and/or modification of an issued permit shall be initiated by serving written notice of noncompliance on the permittee, which shall be sent by registered or certified mail, return receipt requested, to the address listed on the application or to such other address as the applicant or permittee may have advised the City; or such notice may be served on the applicant or permittee in person or his agent in the same manner as service of summons as provided by law.

C. Before any such permit can be rescinded, a public hearing shall be held by the Administrator. Notice of the public hearing shall be made in accordance with RMC Chapter 19.40. The decision of the Administrator shall be the final decision of the City on all rescinded applications. A written decision shall be transmitted to the Department of Ecology, the Attorney General's office, the applicant, and such other departments or boards of the City as are affected thereby and the legislative body of the City.

D. The Department of Ecology may petition the Shoreline Hearings Board for a rescission of the permit if Ecology is of the opinion that the noncompliance continues to exist thirty days after the date of the notice, and the local government has taken no action to rescind the permit, as provided by RCW 90.58.140(8).

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26.50.121 Violations - Penalties

A. Violation of this Chapter is subject to the procedures and penalties of RMC Chapter 10.02 Violations and Procedures.

B. In addition to the provisions of RMC Title 10, the City Attorney may bring action pursuant to RCW 90.58 and other applicable statutes including such injunctive, declaratory, or other actions as are necessary to insure that no uses are made of the Shorelines of the State within the City's jurisdiction which are in conflict with the provisions and programs of this Master Program or the Shoreline Management Act of 1971, and to otherwise enforce provisions of this Section and the Shoreline Management Act of 1971 including the cease and desist provisions of WAC 173-27-270.

C. Any person who shall fail to conform to the terms of a permit issued under this chapter or who shall undertake development on the shorelines of the state without first obtaining any permit required under this chapter shall also be subject to a civil penalty not to exceed one thousand dollars for each violation. Each permit violation or each day of continued development without a required permit shall constitute a separate violation.

D. In addition to incurring civil liability, any person found to have willfully engaged in activities on the shorelines of the state in violation of the provisions of this chapter or any of the master programs, rules, or regulations adopted pursuant thereto shall be guilty of a gross misdemeanor, and shall be punished by a fine of not less than twenty-five nor more than one thousand dollars or by imprisonment in the county jail for not more than ninety days, or by both such fine and imprisonment: Provided That the fine for the third and all subsequent violations in any five-year period shall be not less than five hundred nor more than ten thousand dollars: Provided further:

E. Any person subject to the regulatory program of this Master Program who violates any provision of this Master Program or the provisions of a permit issued pursuant thereto shall be liable for all damages to public or private property arising from such violation, including the cost of restoring the affected area to its condition prior to such violation. The City Attorney shall bring suit for damages under this subsection on behalf of the City. Private persons shall have the right to bring suit for damages under this subsection on their own behalf and on behalf of all persons similarly situated. If liability has been established for the cost of restoring an area affected by violation, the Court shall make provision to assure that restoration will be accomplished within a reasonable time at the expense of the violator. In addition to such relief, including monetary damages, the Court in its discretion may award attorney's fees and costs of the suit to the prevailing party.

26.50.140 Restoration Project Relocation of OHWM

The City may grant relief from Shoreline Master Program development standards and use regulations when the following apply:

A. A shoreline restoration project causes, or would cause, a landward shift in the ordinary high water mark, resulting in the following:

1. Land that had not been regulated under this chapter prior to construction of the restoration project is brought under shoreline jurisdiction; or

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2. Additional regulatory requirements apply due to a landward shift in required shoreline buffers or other regulations of the applicable Shoreline Master Program; and

3. Application of Shoreline Master Program regulations would preclude or interfere with use of the property permitted by local development regulations, thus presenting a hardship to the project proponent.

B. The proposed relief meets all of the following criteria:

1. The proposed relief is the minimum necessary to relieve the hardship.

2. After granting the proposed relief, there is net environmental benefit from the restoration project.

3. Granting the proposed relief is consistent with the objectives of the shoreline restoration project and consistent with the Shoreline Master Program.

4. Where a shoreline restoration project is created as mitigation to obtain a development permit, the project proponent required to perform the mitigation is not eligible for relief under this section.

C. The application for relief must be submitted to the Department of Ecology for written approval or disapproval. This review must occur during the Ecology's normal review of a shoreline substantial development permit, special use permit, or variance. If no such permit is required, then Ecology shall conduct its review when the local government provides a copy of a complete application and all supporting information necessary to conduct the review.

1. Except as otherwise provided in Subsection D of this section, the Department of Ecology shall provide at least 20-day notice to parties that have indicated interest to Ecology in reviewing applications for relief under this section, and post the notice on to their website.

2. The Department of Ecology shall act within 30 calendar days of close of the public notice period, or within 30 days of receipt of the proposal from the local government if additional public notice is not required.

D. The public notice requirements of Subsection C of this section do not apply if the relevant shoreline restoration project was included in a Shoreline Master Program or shoreline restoration plan as defined in WAC 173-26-201, as follows:

1. The restoration plan has been approved by the Ecology under applicable Shoreline Master Program guidelines; and

2. the shoreline restoration project is specifically identified in the Shoreline Master Program or restoration plan or is located along a shoreline reach identified in the Shoreline Master Program or restoration plan as appropriate for granting relief from shoreline regulations; and

3. the Shoreline Master Program or restoration plan includes policies addressing the nature of the relief and why, when, and how it would be applied.

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26.50.150 Shoreline Moratorium

The City Council may adopt moratoria or other interim official controls as necessary and appropriate to implement the provisions of the Shoreline Management Act in accordance with RCW 90.58.590

26.60 Sensitive Areas

The following sections of RMC Chapter 26.60 Sensitive Areas apply to Sensitive areas within Shoreline Management Act jurisdiction.

26.60.010 General purpose and intent.

A. Sensitive areas perform many important biological and physical functions that benefit the city of Richland and its residents. The City shall regulate in the shoreline jurisdiction all uses, activities, and development within, adjacent to, or likely to affect one or more sensitive areas, consistent with the provisions of RMC 26.60, Sensitive Areas.

These functions include, but are not limited to, the following (by type):

1. Wetlands: helping to maintain water quality; storing and conveying stormwater and flood water; recharging ground water; providing important wildlife habitat; and serving as areas for recreation, educational and scientific study, and aesthetic appreciation; and

2. Fish and wildlife habitat areas: maintaining species diversity and genetic diversity of local flora and fauna; providing opportunities for food, cover, nesting, breeding and movement for fish and wildlife; serving as areas for recreation, educational and scientific study and aesthetic appreciation; helping to maintain air and water quality; controlling erosion; and providing neighborhood separation and visual diversity within urban areas.

3. In addition, certain portions of the city of Richland are characterized by geologic hazards that pose a risk to public and private property, to human life and safety and to the natural systems that make up the environment of the city of Richland. These lands are affected by natural processes that make them susceptible to landslides, seismic activity, and/or severe erosion.

The city of Richland maintains that protection of sensitive areas and regulation of geologic hazards are necessary to protect the public health, safety, and welfare.

B. This section of the Shoreline Master Program contains standards, guidelines, criteria and requirements intended to identify, analyze, and mitigate probable impacts to the city of Richland's sensitive areas and geologic hazard areas within the Shoreline Jurisdiction and to enhance and restore them when possible. The intent of these regulations, in concert with other Shoreline Master Program provisions, is to achieve no net loss of ecological function. In appropriate circumstances, impacts to sensitive and geologic hazard areas that result from regulated activities may be minimized, rectified, reduced, and/or compensated for, consistent with these requirements. The city of Richland's goal shall be the protection of existing ecological functions and ecosystem-wide processes and restoration of degraded ecological functions and ecosystem-wide processes to achieve no net loss of shoreline ecological functions and to avoid probable impacts, to the extent feasible, to all sensitive areas.

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E. It is the intent of this section to:

1. Implement the goals and policies of the city of Richland's comprehensive plan, including those goals and policies that pertain to natural features and environmental protection; aesthetics and community character; adequate housing and infrastructure; opportunities for economic development; creation of a balanced transportation system; adequate public facilities; and achievement of a mix of land use types and densities consistent with the city of Richland's land use plan;

2. Protect sensitive areas through the application of the most current, accurate, and complete scientific or technical information available as determined according to WAC 173-26-201(2)(a), and in consultation with state and federal agencies and other qualified professionals and integrate the full spectrum of state, tribal, and federal programs;

3. Comply with the Shoreline Management Act (RCW 90.58) and implementing rules;

4. Serve as a basis for exercise of the City's substantive authority under the State Environmental Policy Act (SEPA) and the City's SEPA rules;

5. Comply with the requirements of the Growth Management Act (RCW 36.70A) and implementing rules; and

6. Coordinate environmental review and permitting of proposals to avoid duplication and delay.

F. The city of Richland has mapping available from a variety of local, state, and federal information sources and based on topographic, geologic, hydrologic, and habitat characteristics that indicate where sensitive areas or geologic hazards may exist. Additional study and mapping are needed to verify that such conditions do prevail and are needed to identify other areas that are potentially sensitive areas. Maps and reference documents in the city of Richland's SMP Inventory, Characterization and Analysis report include this information. This mapping helps the City identify the potential presence of sensitive areas or the risks associated with developing lands subject to geologic hazards to the public. It should be noted that the boundaries of the sensitive areas and geologic hazard areas displayed on these maps are approximate and are not intended to be used for individual site assessment. When differences occur between what is illustrated on these maps and current site conditions, the actual presence or absence of environmentally sensitive areas or geologic hazard areas on the site shall determine the action to be taken.

26.60.012 General applicability of these regulations.

The provisions of these regulations shall apply to any activity that affects sensitive areas or their established buffers within the city's Shoreline Jurisdiction, and this provision applies whether or not a substantial development permit or other type of City approval is being sought.

26.60.015 General relationship of regulations of one type of sensitive area protection to other regulations.

These sensitive area regulations shall apply as an overlay and in addition to shoreline, zoning, land use, and other regulations established by the city of Richland.

Areas characterized as sensitive may also be subject to other regulations established by this chapter due to the overlap or multiple functions of some sensitive or critical areas. For example, some landslide hazard areas (e.g., steep slopes) adjacent to wetlands may be regulated by buffering requirements according to the wetland management provisions of this chapter. Wetlands may be defined and regulated according to the wetland section and habitat management provisions of this chapter.

In the event of any conflict between these regulations and any other regulations of the city of Richland, the regulations which provide greater protection to environmentally sensitive areas shall apply.

Article II. Wetlands

26.60.020 Regulated activities in wetlands.

The following activities which occur in conjunction with a development application within a wetland and its associated buffer, or outside a wetland or buffer, but affecting the wetland or buffer, shall be regulated pursuant to the standards of this chapter to achieve, at a minimum, no net loss of wetland area and ecological functions, including lost time when the wetland does not perform the function:

A. Removing, excavating, disturbing or dredging soil, sand, gravel, minerals, organic matter or materials of any kind;

B. Dumping, discharging or filling with any material;

C. Draining, flooding or disturbing the water level or water table;

D. Driving, piling or placing obstructions;

E. Constructing, reconstructing, demolishing or altering any structure or infrastructure; or if the activity results in greater impervious surface coverage;

F. Destroying or altering vegetation, including through clearing, harvesting, shading or planting vegetation that would alter the character of wetland;

G. Activities that result in significant changes in water temperature, physical or chemical characteristics of wetland water sources, including water quantity and quality as stated in Chapter 90.03 RCW and Chapter 173-201 WAC;

H. Alteration of natural drainage patterns or any activity that results in a discharge of stormwater runoff into a wetland; and

I. Any other activities affecting a wetland or wetland buffer not otherwise exempt from the provisions of this section.

26.60.021 Exemptions and allowed uses in wetlands.

A. Wetlands. The following wetlands are exempt from the buffer provisions contained in this Chapter and the normal mitigation sequencing process in RMC 26.20.020 They may be filled if impacts are fully mitigated based on provisions in RMC 26.60.025 Wetland alteration and mitigation. In order to verify the following conditions, a critical area report for wetlands must be submitted.

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1. All isolated Category III and IV wetlands less than 1,000 square feet that:
    a. Are not associated with riparian areas or buffer
    b. Are not part of a wetland mosaic.
    c. Do not contain habitat identified as essential for local populations of priority species identified by Washington Department of Fish and Wildlife or species of local importance.
    d. Are not a vernal pool.
    e. Are not an alkali wetland
    f. Do not contain aspen stands

B. Activities Allowed in Wetlands. The activities listed below are allowed in wetlands. These activities do not require submission of a sensitive area report, except where such activities result in a loss of the functions and values of a wetland or wetland buffer. These activities include:

1. Those activities and uses conducted pursuant to the Washington State Forest Practices Act and its rules and regulations, WAC 222-12-030, where state law specifically exempts local authority, except those developments requiring local approval for Class 4 – General Forest Practice Permits (conversions) as defined in RCW 76.09 and WAC 222-12.
2. Conservation or preservation of soil, water, vegetation, fish, shellfish, and/or other wildlife that does not entail changing the structure or functions of the existing wetland.
3. The harvesting of wild crops in a manner that is not injurious to natural reproduction of such crops and provided the harvesting does not require tilling of soil, planting of crops, chemical applications, or alteration of the wetland by changing existing topography, water conditions, or water sources.
4. Drilling for utilities/utility corridors under a wetland, with entrance/exit portals located completely outside of the wetland buffer, provided that the drilling does not interrupt the ground water connection to the wetland or percolation of surface water down through the soil column. Specific studies by a hydrologist are necessary to determine whether the ground water connection to the wetland or percolation of surface water down through the soil column will be disturbed.
5. Enhancement of a wetland through the removal of non-native invasive plant species. Removal of invasive plant species shall be restricted to hand removal unless permits from the appropriate regulatory agencies have been obtained for approved biological or chemical treatments. All removed plant material shall be taken away from the site and appropriately disposed of. Plants that appear on the Washington State Noxious Weed Control Board list of noxious weeds must be handled and disposed of according to a noxious weed control plan appropriate to that species. Re-vegetation with appropriate native species at natural densities shall occur in conjunction with removal of invasive plant species.
6. Educational and scientific research activities

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7. Normal and routine maintenance and repair of any existing public or private facilities within an existing right-of-way, provided that the maintenance or repair does not expand the footprint or use of the facility or right-of-way.

C. Notwithstanding the exemptions provided by this chapter, any otherwise exempt activities occurring in or near wetlands shall comply with the intent of these standards and shall consider on-site alternatives that achieve no net loss of ecological wetland functions.

26.60.022 Wetland inventory maps.

The approximate location and extent of wetlands within the city of Richland's planning area are shown on the sensitive areas maps adopted as part of this program, and provided in the City's SMP Inventory, Analysis and Characterization report. These maps shall be used only as a general guide for the assistance of property owners and the public, as the boundaries are generalized. The actual type, extent, and boundaries of wetlands shall be determined in the field by a qualified consultant according to the procedures, definitions, and criteria established by this chapter. In the event of any conflict between the wetland location or designation shown on the city of Richland's maps and the criteria or standards of this chapter, the results of applying the criteria and standards during the field investigation shall control.

26.60.023 Rating – Categories of wetland.

Wetlands shall be designated Category I, Category II, Category III, or Category IV according to the following criteria:

A. Category I, II, III, and IV are set forth in the Washington State Department of Ecology's Washington State Wetlands Rating System for Eastern Washington (Annotated Version), Publication #04-06-015, August 2004, Annotated March 2007, as may be amended in the future (hereinafter referred to as the Ecology Wetlands Rating System).

26.60.024 Wetland buffer areas.

A. The establishment of wetland buffer areas shall be required for all development proposals and activities adjacent to wetlands to protect the integrity, function, and value of the wetland. Buffers shall consist of an undisturbed area of vegetation established to protect the functions and values of the wetland. The standard buffer widths assume that the buffer is vegetated with a native plant community appropriate for the ecoregion. If the existing buffer is unvegetated, sparsely vegetated, or vegetated with invasive species that do not perform needed functions, the buffer should either be planted to create the appropriate plant community or the buffer should be widened to ensure that adequate functions of the buffer are provided. Buffers shall be determined in conjunction with considerations of wetland type and quality, approved wetland alterations, and required mitigation measures. Buffers are not intended to be established or to function independently of the wetland they are established to protect; the establishment of a buffer shall not operate to prevent a use or activity that would otherwise be permitted in the wetland subject to mitigation.

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B. Buffers shall be measured from the wetland edge as delineated using the Washington State Wetlands Identification and Delineation Manual and marked in the field. Required buffer widths shall be determined according to the proposed land use (Table 26.60.024 (C)) and the wetland category (Table 26.60.024 (D)).

C. The following table describes the types of land use:

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Table 26.60.024 C. Land Use Intensity Table

Level of Impact from Proposed Change in Land Use	Types of Land Use Based on Common Zoning Designations
High	• Commercial • Urban • Industrial • Institutional • Retail sales • Residential (more than 1 unit/acre) • High-intensity recreation (golf courses, ball fields, etc.)
Moderate	• Residential (1 unit/acre or less) • Moderate-intensity open space (parks with biking, jogging, etc.) • Paved driveways and gravel driveways serving 3 or more residences • Paved trails
Low	• Low-intensity open space (hiking, bird-watching, preservation of natural resources, etc.) • Timber management • Gravel driveways serving 2 or fewer residences • Unpaved trails • Utility corridor without a maintenance road and little or no vegetation management.

D. The following buffer widths are established:

Table 26.60.024 D Wetland Buffer Widths

Wetland Characteristics	Buffer Width by Impact of Proposed Land Use	Other Measures Recommended for Protection
Category IV Wetlands (For wetlands scoring less than 30 points or more for all functions)		
Score for all 3 basic functions is less than 30 points	Low – 25 ft Moderate – 40 ft High – 50 ft	No recommendations at this time
Category III Wetlands (For wetlands scoring 30-50 points or more for all functions)		
Moderate level of function for habitat (score for habitat 20-28 points)	Low – 75 ft Moderate – 110 ft High – 150 ft	No recommendations at this time
Not meeting above characteristic	Low – 40 ft Moderate – 60 ft High – 80 ft	No recommendations at this time
Category II Wetlands (For wetlands that score 51-69 points or more for all functions or having the "Special Characteristics" identified in the rating system)		
High level of function for habitat (score for habitat 29-36 points)	Low – 100 ft Moderate – 150 ft High – 200 ft	Maintain connections to other habitat areas.
Moderate level of function for habitat (score for habitat 20-28 points)	Low – 75 ft	No recommendations at this

Wetland Characteristics	Buffer Width by Impact of Proposed Land Use	Other Measures Recommended for Protection
	Moderate – 110 ft High – 150 ft	time
High level of function for water quality improvement and low for habitat (score for water quality 24-32 points; habitat less than 20 points)	Low – 50 ft Moderate – 75 ft High – 100 ft	No additional surface discharges of untreated runoff
Riparian forest	Buffer width to be based on score for habitat functions or water quality functions	Riparian forest wetlands need to be protected at a watershed or subbasin scale Other protection based on needs to protect habitat and/or water quality functions
Not meeting above characteristic	Low – 50 ft Moderate – 75 ft High – 100 ft	No recommendations at this time
Category I Wetlands (For wetlands that score 70 points or more for all functions or having the "Special Characteristics" identified in the rating system)		
Natural Heritage Wetlands	Low – 125 ft Moderate – 190 ft High – 250 ft	No additional surface discharges to wetland or its tributaries. No septic systems within 300 ft of wetland. Restore degraded parts of buffer.
High level of function for habitat (score for habitat 29-36 points)	Low – 100 ft Moderate – 150 ft High – 200 ft	Restore degraded parts of buffer. Maintain connections to other habitat areas
Moderate level of function for habitat (score for habitat 20-28 points)	Low – 75 ft Moderate – 110 ft High – 150 ft	No recommendations at this time
High level of function for water quality improvement (24-32 points) and low for habitat (less than 20 points)	Low – 50 ft Moderate – 75 ft High – 100 ft	No additional surface discharges of untreated runoff
Not meeting above characteristics	Low – 50 ft Moderate – 75 ft High – 100 ft	No recommendations at this time

26.60.025 Buffer Modifications

A. Buffer averaging to improve wetland protection may be permitted when all of the following conditions are met:

1. The wetland has significant differences in characteristics that affect its habitat functions, such as a wetland with a forested component adjacent to a degraded emergent component or a "dual-rated" wetland with a Category I area adjacent to a lower rated area.

2. The buffer is increased adjacent to the higher functioning area of habitat or more sensitive portion of the wetland and decreased adjacent to the lower functioning or less sensitive portion as demonstrated by a critical areas report from a qualified wetland professional.

3. The total area of the buffer after averaging is equal to the area required without averaging.

4. The buffer at its narrowest point is never less than either ¾ of the required width or 75 feet for Category I and II, 50 feet for Category III, and 25 feet for Category IV, whichever is greater.

B. Averaging for proposed land uses may be allowed when all of the following are met:

1. There are no feasible alternatives to the site design that could be accomplished without buffer averaging.

2. The averaged buffer will not result in degradation of the wetland's functions and values as demonstrated by a critical areas report from a qualified wetland professional.

3. The total buffer area after averaging is equal to the area required without averaging.

4. The buffer at its narrowest point is never less than either ¾ of the required width or 75 feet for Category I and II, 50 feet for Category III, and 25 feet for Category IV, whichever is greater.

C. Reduction in buffer width based on reducing the intensity of impacts from proposed land uses

1. The buffer widths recommended for proposed land uses with high-intensity impacts to wetlands can be reduced to those recommended for moderate-intensity impacts under the following conditions:

a. For wetlands that score moderate or high for habitat (20 points or more for the habitat functions), the width of the buffer can be reduced if both of the following criteria are met:

i. A relatively undisturbed, vegetated corridor at least 100 feet wide is protected between the wetland and any other Priority Habitats as defined by the Washington State Department of Fish and Wildlife ("relatively undisturbed" and "vegetated corridor" are defined in questions H 2.1 and H 2.2.1 of the Washington State Wetland Rating System for Eastern Washington – Revised (Hruby 2004a), or latest update). Priority Habitats in eastern Washington include:

- Wetlands
- Riparian zones
- Cliffs
- Urban natural open space

ii. The corridor must be protected for the entire distance between the wetland and the Priority Habitat by some type of legal protection such as a conservation easement.

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iii. Measures to minimize the impacts of different land uses on wetlands, such as the examples summarized in Table 26.60.025 D, are applied.

b. For wetlands that score fewer than 20 points for habitat, the buffer width can be reduced to that required for moderate land-use impacts by applying measures to minimize the impacts of the proposed land uses (see examples in Table 26.60.025 D).

D. Examples of measures to minimize impacts to wetlands from changes in land uses with high impacts.

Table 26.60.025 D Examples of measures to minimize impacts to wetlands from changes in land uses with high impacts

Examples of Disturbance	Activities and Uses that Cause Disturbances	Examples of Measures to Minimize Impacts
Lights	• Parking lots • Warehouses • Manufacturing • Residential areas	• Direct lights away from wetland
Noise	• Manufacturing • Residential areas	• Locate activity that generates noise away from wetland
Toxic runoff*	• Parking lots • Roads • Manufacturing • Residential areas • Application of agricultural pesticides • Landscaping	• Route all new, untreated runoff away from wetland while ensuring wetland is not dewatered • Establish covenants limiting use of pesticides within 150 ft of wetland • Apply integrated pest management
Stormwater runoff	• Parking lots • Roads • Manufacturing • Residential areas • Commercial • Landscaping	• Retrofit stormwater detention and treatment for roads and existing adjacent development • Prevent channelized flow from lawns that directly enters the buffer
Change in water regime	• Impermeable surfaces • Lawns • Tilling	• Infiltrate or treat, detain, and disperse into buffer new runoff from impervious surfaces and new lawns
Pets and human disturbance	• Residential areas	• Use privacy fencing; plant dense vegetation to delineate buffer edge and to discourage disturbance using vegetation appropriate for the ecoregion; place wetland and its buffer in a separate tract
Dust	• Tilled fields	• Use BMPs to control dust
* These examples are not necessarily adequate for minimizing toxic runoff if threatened or endangered species are present at the site.		

E. The minimum buffer width stated in Table 26.60.024 D Wetland Buffer Widths shall be increased when the qualified consultant determines, based upon a site-specific wetland analysis, that

impacts on the wetland from a proposed development can only be mitigated by a greater buffer width. The standard wetland buffer width shall be increased:

1. When the adjacent land is susceptible to severe erosion and erosion control measures will not effectively prevent adverse wetland impacts; or
2. When the standard buffer has minimal or degraded vegetative cover that cannot be improved through enhancement; or
3. When the wetland provides habitat for a species that is particularly sensitive to disturbance (such as a threatened or endangered species), the width of the buffer should be increased to provide adequate protection for the species based on its particular life-history needs.
4. When the minimum buffer for a wetland extends into an area with a slope of greater than 25 percent, the buffer shall be the greater of:
    a. The minimum buffer for that particular wetland; or
    b. Twenty-five feet beyond the point where the slope becomes 25 percent or less.

F. Low impact uses and activities (see Table 25.50.090 (C)) that are consistent with the purpose and function of the wetland buffer and do not detract from its integrity may be permitted within the buffer depending on the sensitivity of the wetland. Examples of uses and activities that may be permitted in appropriate cases, based on guidance in the Wetlands and CAO Guidance for Small Cities, Eastern Washington version (dated January 2010, revised October 2012, as may be amended in the future), include pedestrian trails, viewing platforms, stormwater management facilities such as grass-lined swales, and utility easements. Uses permitted within the buffer shall be located in the outer portion of the buffer as far as possible from the wetland.

G. A variance from buffer width requirements may be granted by the city of Richland upon a demonstration by the applicant that the Shoreline variance criteria are met per RMC 26.50.060.

26.60.026 Wetland alteration and mitigation.

A. All adverse impacts to wetland functions and values shall be mitigated. Mitigation actions by an applicant or property owner shall occur in the following priority sequence per RMC 26.20.020.B Ecological Functions, No Net Loss (Mitigation Sequence).

B. Where impacts cannot be avoided, the applicant or property owner shall seek to implement other appropriate mitigation actions in compliance with the intent, standards, and criteria of this section. These shall include consideration of alternative site plans and building layouts and/or reduction in the density or scope of the proposal.

C. Alteration of wetlands and/or their buffers may be permitted by the City subject to the following criteria:

1. Category I Wetlands. Alterations of Type I wetlands shall be avoided. .
2. Category II Wetlands.

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a. Any proposed alteration and mitigation shall comply with the requirements of this section through RMC 26.60.027 Mitigation standards, criteria, and plan requirements; and

b. No net loss of wetland function and value will occur due to the alteration.

3. Category III Wetlands.

a. The proposed mitigation complies with the requirements of this section through RMC 26.60.027 Mitigation standards, criteria, and plan requirements; and

b. Where enhancement is proposed, replacement ratios comply with the requirements of RMC 26.60.027 Mitigation standards, criteria, and plan requirements (C) Wetland Replacement Ratios.

26.60.027 Stormwater runoff.

New development within 150 feet of a wetland buffer shall contain stormwater runoff within the developed portions of the site. No stormwater runoff shall drain into the wetland. Deviations from this standard may be approved by the City; provided, that a study undertaken by a qualified consultant in accordance with the provisions of RMC 26.60.028 indicates that the potential discharge of stormwater runoff from a development site into a wetland is adequately mitigated to protect the functions and values of the wetland. In the case of a Category 3 or Category 4 wetland, stormwater management facilities may be located within the outer 25 percent of the required wetland buffer; provided, that a determination is made that no other location is feasible and the location of such facilities will not have an adverse impact on the functions and values of the wetland.

26.60.028 Mitigation standards, criteria, and plan requirements.

A. Location and Timing of Mitigation.

1. Location of Compensatory Mitigation. Compensatory mitigation actions shall be conducted within the same sub-drainage basin and on the site of the alteration except when all of a through d below apply. In that case, mitigation may be allowed off site within the subwatershed of the impact site. When considering off-site mitigation, preference should be given to using alternative mitigation, such as a mitigation bank, an in-lieu fee program, or advanced mitigation.

a. There are no reasonable opportunities on site or within the sub-drainage basin (e.g., on-site options would require elimination of high-functioning upland habitat), or opportunities on site or within the sub-drainage basin do not have a high likelihood of success based on a determination of the capacity of the site to compensate for the impacts. Considerations should include: anticipated replacement ratios for wetland mitigation, buffer conditions and proposed widths, available water to maintain anticipated hydrogeomorphic classes of wetlands when restored, proposed flood storage capacity, and potential to mitigate riparian fish and wildlife impacts (such as connectivity).

b. On-site mitigation would require elimination of high-quality upland habitat.

c. Off-site mitigation has a greater likelihood of providing equal or improved wetland functions than the altered wetland.

d. Off-site locations shall be in the same sub-drainage basin unless:

i. Established watershed goals for water quality, flood storage or conveyance, habitat, or other wetland functions have been established by the City and strongly justify location of mitigation at another site.

ii. The design for the compensatory mitigation project needs to be appropriate for its location (i.e., position in the landscape). Therefore, compensatory mitigation should not result in the creation, restoration, or enhancement of an atypical wetland. An atypical wetland refers to a compensation wetland (e.g., created or enhanced) that does not match the type of existing wetland that would be found in the geomorphic setting of the site (i.e., the water source[s] and hydroperiod proposed for the mitigation site are not typical for the geomorphic setting). Likewise, it should not provide exaggerated morphology or require a berm or other engineered structures to hold back water. For example, excavating a permanently inundated pond in an existing seasonally saturated or inundated wetland is one example of an enhancement project that could result in an atypical wetland. Another example would be excavating depressions in an existing wetland on a slope, which would require the construction of berms to hold the water.

2. Timing of Compensatory Mitigation. It is desirable that compensatory mitigation projects be completed prior to activities that will disturb wetlands. At the least, compensatory mitigation shall be completed immediately following disturbance and prior to use or occupancy of the action or development. Construction of mitigation projects shall be timed to reduce impacts to existing fisheries, wildlife, and flora.

3. The Administrator may authorize a one-time, temporary delay in completing construction or installation of the compensatory mitigation when the applicant provides a written explanation from a qualified wetland professional as to the rationale for the delay. An appropriate rationale would include identification of the environmental conditions that could produce a high probability of failure or significant construction difficulties (e.g., project delay lapses past a fisheries window, or installing plants should be delayed until the dormant season to ensure greater survival of installed materials). The delay shall not create or perpetuate hazardous conditions or environmental damage or degradation, and the delay shall not be injurious to the health, safety, or general welfare of the public. The request for the temporary delay must include a written justification that documents the environmental constraints that preclude implementation of the compensatory mitigation plan. The justification must be verified and approved by the City.

B. Mitigation Performance Standards.

1. Adverse impacts to wetlands functions and values shall be mitigated. Mitigation actions shall be implemented in the preferred sequence identified in RMC 26.20.020 Ecological Functions.

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Proposals which include less preferred and/or compensatory mitigation shall demonstrate that:

a. All feasible and reasonable measures will be taken to reduce impacts and losses to the original wetland. Describe how preferred order of wetlands mitigation was followed: 1) restoration (including reestablishment and rehabilitation); 2) creation (establishment); 3) enhancement in combination with restoration or creation; and 4) preservation of high quality, at risk wetlands.

b. Compensatory mitigation shall be allowed only after mitigation sequencing is applied and higher priority means of mitigation are determined to be infeasible, and shall achieve equivalent or greater wetland ecological functions.

c. No overall net loss will occur in wetland functions and values; and

d. The restored, created, or enhanced wetland will be as persistent and sustainable as the wetland it replaces.

C. Wetland Replacement Ratios.

1. Where wetlands alterations are permitted by the City the applicant shall restore or create equivalent areas of wetlands in order to compensate for wetland losses. Equivalent areas shall be determined according to acreage, function, type, location, timing factors, and projected success of restoration or creation.

2. The following acreage replacement ratios shall be applied.

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Table 26.60.027: Mitigation ratios for eastern Washington[1]

Category and Type of Wetland Impacts	Re-establishment or Creation	Rehabilitation Only[2]	Re-establishment or Creation (R/C) and Rehabilitation (RH)[2]	Re-establishment or Creation (R, C) and Enhancement (E)[2]	Enhancement Only[2]
All Category IV	1.5:1	3:1	1:1 R/C and 1:1 RH	1:1 R/C and 2:1 E	6:1
All Category III	2:1	4:1	1:1 R/C and 2:1 RH	1:1 R/C and 4:1 E	8:1
Category II Forested	4:1	8:1	1:1 R/C and 4:1 RH	1:1 R/C and 6:1 E	16:1
Category II Vernal Pool	2:1 Compensation must be seasonally ponded wetland	4:1 Compensation must be seasonally ponded wetland	1:1 R/C and 2:1 RH	Case-by-case	Case-by-case
All other Category II	3:1	6:1	1:1 R/C and 4:1 RH	1:1 R/C and 8:1 E	12:1
Category I Forested	6:1	12:1	1:1 R/C and 10:1 RH	1:1 R/C and 20:1 E	24:1
Category I based on score for functions	4:1	8:1	1:1 R/C and 6:1 RH	1:1 R/C and 12:1 E	16:1
Category I Natural Heritage site	Not considered possible[3]	6:1 Rehabilitation of a Natural Heritage site	R/C Not considered possible[3]	R/C Not considered possible[3]	Case-by-base
Category I Alkali	Not considered possible[3]	6:1 Rehabilitation of an alkali wetland	R/C Not considered possible[3]	R/C Not considered possible[3]	Case-by-case
Category I Bog	Not considered possible[3]	6:1 Rehabilitation of a bog	R/C Not considered possible[3]	R/C Not considered possible[3]	Case-by-case

1. Ratios for rehabilitation and enhancement may be reduced when combined with 1:1 replacement through creation or re-establishment. See Table 1b, Wetland Mitigation in Washington State – Part 1: Agency Policies and Guidance--Version 1, (Ecology Publication #06-06-011a, Olympia, WA, March 2006 or as revised).
2. These ratios are based on the assumption that the rehabilitation or enhancement actions implemented represent the average degree of improvement possible for the site. Proposals to implement more effective rehabilitation or enhancement actions may result in a lower ratio, while less effective actions may result in a higher ratio. The distinction between rehabilitation and enhancement is not clear-cut. Instead, rehabilitation and enhancement actions span a continuum. Proposals that fall within the gray area between rehabilitation and enhancement will result in a ratio that lies between the ratios for rehabilitation and the ratios for enhancement
3. Natural Heritage sites, alkali wetland, and bogs are considered irreplaceable wetlands because they perform some functions that cannot be replaced through compensatory mitigation. Impacts to such wetlands would therefore result in a net loss of some functions no matter what kind of compensation is proposed.

Reference:

Washington State Department of Ecology, U.S. Army Corps of Engineers Seattle District, and U.S. Environmental Protection Agency Region 10. March 2006. Wetland Mitigation in Washington State – Part 1: Agency Policies and Guidance (Version 1). Washington State Department of Ecology Publication #06-06-011a. Olympia, WA.

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3. Credit/Debit Method. To more fully protect functions and values, and as an alternative to the mitigation ratios found in the joint guidance "Wetland Mitigation in Washington State Parts I and II" (Ecology Publication #06-06-011a-b, Olympia, WA, March, 2006), the administrator may allow mitigation based on the "credit/debit" method developed by the Department of Ecology in "Calculating Credits and Debits for Compensatory Mitigation in Wetlands of Eastern Washington: Final Report" (Ecology Publication #11-06-015, August 2012, or as revised).

26.60.029 Wetland mitigation plan requirements.

Where it is determined by the city that compensatory wetland mitigation is required or appropriate, a mitigation plan shall be prepared consistent with the provisions below and shall also meet the minimum requirements contained in the Wetlands and CAO Guidance for Small Cities, Eastern Washington version (dated January 2010, revised October 2012, and as amended in the future). The purpose of the plan is to prescribe mitigation to compensate for impacts to the wetland functions, values, and acreage as a result of the proposed action. This plan shall consider the chemical, physical, and biological impacts on the wetland system using a recognized wetlands assessment methodology and/or best professional judgment. The mitigation plan shall be prepared in two phases, a conceptual phase and a detailed phase.

A. Conceptual Plan – Standards and Criteria. The applicant shall prepare a conceptual mitigation plan for submission to the City at a premitigation conference. The conceptual mitigation plan shall include:

1. General goals of the mitigation plan;
2. A review of literature or experience to date in restoring or creating the type of wetland proposed;
3. Location of proposed wetland compensation area;
4. General hydrologic patterns on the site following construction;
5. Nature of compensation, including wetland types (in-kind), general plant selection and justification, approximate project sequencing and schedule, and approximate size of the new wetland buffer;
6. A conceptual maintenance plan; and
7. Conceptual monitoring and contingency plan.

B. Detailed Plan – Standards and Criteria. Following acceptance of the conceptual mitigation plan by the City, the applicant will prepare a detailed mitigation plan. Each detailed plan shall contain, at a minimum, the following seven components, and shall be consistent with the standards in 26.60.023 through 26.60.027:

1. A clear statement of the objectives of the mitigation. The goals of the mitigation plan should be stated in terms of the new wetland functions and values compared to the functions and values of the original wetland. Objectives should include:

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2. Qualitative and quantitative standards for success of the project, including hydrologic characteristics (water depths, water quality, hydroperiod/hydrocycle characteristics, flood storage capacity); vegetative characteristics (community types, species composition, density, and spacing); faunal characteristics, and final topographic elevations.

3. An ecological assessment of the wetland values and wetland buffers that will be lost as a result of the activities, and of the replacement wetlands and buffers, including but not limited to the following:

    i. Acreage of project;

    ii. Existing functions and values;

    iii. Sizes of wetlands, wetland buffers, and areas to be altered;

    iv. Vegetative characteristics, including community type, areal coverage, species composition, and density;

    v. Habitat type(s) to be enhanced, restored, or created; and

    vi. Dates for beginning and completion of the mitigation project, and sequence of construction activities.

4. A statement of the location, elevation, and hydrology of the new site, including the following:

    a. Relationship of the project to the watershed and existing water bodies;

    b. Topography of site using the smallest readily available intervals, preferably one-foot contour intervals but two-foot is acceptable;

    c. Water level data, including depth and duration of seasonally high water table;

    d. Water flow patterns;

    e. Grading, filling and excavation, including a description of imported soils;

    f. Irrigation requirements, if any;

    g. Water pollution mitigation measures during construction;

    h. Areal coverage of planted areas to open water areas (if any open water is to be present); and

    i. Appropriate buffers.

5. A planting plan, describing what will be planted, and where and when the planting will occur, as follows:

    a. Soils and substrate characteristics;

    b. Specify substrate stockpiling techniques; and

    c. Planting instructions, including species, stock type and size, density or spacing of plants, and water and nutrient requirements.

6. A monitoring and maintenance plan, consistent with RMC 26.60.~~150~~.030.

    a. Specify procedures for monitoring and site maintenance; including control of invasive species and

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b. Submit monitoring reports to the City.

7. A contingency plan, consistent with these regulations.

8. A detailed budget for implementation of the mitigation plan, including monitoring, maintenance, and contingency phases.

9. A guarantee, in the form of a bond or other security device in a form and amount acceptable to the city attorney, assuring that the work will be performed as planned and approved, consistent with these regulations and including monitoring, maintenance and contingency.

26.60.030 Performance standards for wetlands mitigation planning.

A. The following performance standards shall be incorporated into mitigation plans submitted to the city of Richland:

1. Plants should be indigenous to the region (not introduced or foreign species);

2. Plants should be adaptable to a broad range of water depths;

3. Plants should be commercially available or available from local sources;

4. Plant species high in food and cover value for fish and wildlife are recommended, when possible;

5. Plants should be mostly perennial species;

6. Avoid committing significant areas of site to species that have questionable potential for successful establishment;

7. Plant selection must be approved by wetlands biologist/ecologist;

8. Water depth is not to exceed six and one-half feet (two meters);

9. The grade or slope that water flows through the wetland is not to exceed six percent;

10. Slopes within the wetland basin and the buffer zone should not be steeper than 3:1 (horizontal to vertical);

11. The substrate should consist of a minimum of one foot, in depth, of clean (uncontaminated with chemicals, or solid/hazardous wastes) inorganic/organic materials;

12. Planting densities and placement of plants should be determined by a qualified professional and shown on the design plans;

13. The wetland (excluding the buffer area) should not contain more than 60 percent open water as measured at the seasonal high water mark;

14. Minimum buffer widths should extend from the wetland boundary in accordance with buffer requirements in Table 26.60.024 D Wetland Buffer Widths for the proposed category rating of the wetland that will be created.

15. The planting plan must be approved by the deputy city manager for community and development services or consultant acting on behalf of the city;

16. Stockpiling should be confined to upland areas and contract specifications should limit stockpile durations to less than four weeks;

17. Planting instructions which describe proper placement, diversity, and spacing of seeds, tubers, bulbs, rhizomes, sprigs, plugs, and transplanted stock;

18. Apply controlled release fertilizer, if reasonable and prudent, at the time of planting and afterward only as plant conditions warrant (determined during the monitoring process);

19. Install an irrigation system, if necessary, for initial establishment period; and

20. Construction specifications and methods must be approved by a qualified consultant and the City.

B. On completion of construction, the wetland mitigation project must be signed off by the applicant's qualified consultant and the City. Signature will indicate that the construction has been completed as planned and all design elements have been fully and correctly implemented. If there have been changes in the implementation of the plan, a written explanation from the consulting biologist must be included.

26.60.031 Wetland monitoring program and contingency plan.

A. A monitoring program shall be implemented to determine the success of the mitigation project and any necessary corrective actions. This chapter shall determine if the original goals and objectives are being met.

B. A contingency plan shall be established for compensation in the event that the mitigation project is inadequate or fails. A performance and maintenance bond or other acceptable security device is required to ensure the applicant's compliance with the terms of the mitigation agreement. The amount of the performance and maintenance bond shall equal 125 percent of the cost of the mitigation project for a period of five years. The City may agree to reduce the bond in phases in proportion to work successfully completed over the period of the bond.

1. During monitoring, scientific procedures for establishing the success or failure of the project must be used;

2. For vegetation determinations, permanent sampling points shall be established;

3. Vegetative success will be defined as 80 percent per year survival of planted trees and shrubs and 80 percent per year cover of desirable understory or emergent species;

4. Submit monitoring reports on the current status of the mitigation project to the City. The reports are to be prepared by a qualified consultant and reviewed by the city's consultant and should include monitoring information on wildlife, vegetation, water quality, water flow, stormwater storage and conveyance, and existing or potential degradation, and shall be produced on the following schedule:

    a. At the time of construction;

    b. Thirty days after planting;

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c. Early in the growing season of the first year;

d. End of the growing season of the first year;

e. Twice the second year; and

f. Annually thereafter;

5. Monitor for five growing seasons. If the mitigation goals are not obtained within the initial 5-year period, the applicant remains responsible for restoration of the natural resource values and functions until the mitigation goals agreed to in the mitigation plan are achieved;

6. If necessary, correct for failures in the mitigation project;

7. Replace dead or undesirable vegetation with appropriate plantings, based on the approved planting plan or 26.60.029;

8. Repair damages caused by erosion, settling, or other geomorphological processes;

9. Redesign mitigation project (if necessary) and implement the new design; and

10. Correction procedures shall be approved by a qualified consultant and the City.

26.60.032 Unauthorized Alterations and Enforcement

A. When a wetland or its buffer has been altered in violation of this Chapter, all ongoing development work shall stop and the critical area shall be restored. The City shall have the authority to issue a "stop-work" order to cease all ongoing development work and order restoration, rehabilitation, or replacement measures at the owner's or other responsible party's expense to compensate for violation of provisions of this Chapter.

B. Requirement for Restoration Plan. All development work shall remain stopped until a restoration plan is prepared and approved by City. Such a plan shall be prepared by a qualified professional using the currently accepted scientific principles and shall describe how the actions proposed meet the minimum requirements described in Subsection C. The Administrator shall, at the violator's expense, seek expert advice in determining the adequacy of the plan. Inadequate plans shall be returned to the applicant or violator for revision and resubmittal.

C. Minimum Performance Standards for Restoration. The following minimum performance standards shall be met for the restoration of a wetland, provided that if the violator can demonstrate that greater functions and habitat values can be obtained, these standards may be modified:

1. The historic structure, functions, and values of the affected wetland shall be restored, including water quality and habitat functions.

2. The historic soil types and configuration shall be restored to the extent practicable.

3. The wetland and buffers shall be replanted with native vegetation that replicates the vegetation historically found on the site in species types, sizes, and densities. The historic functions and values should be replicated at the location of the alteration.

4. Information demonstrating compliance with other applicable provisions of this Chapter shall be submitted to the Administrator.

D. Site Investigations. The Administrator is authorized to make site inspections and take such actions as necessary to enforce this Chapter. The Administrator shall present proper credentials and make a reasonable effort to contact any property owner before entering onto private property.

E. Penalties. See Section 26.60.084 (B).

F. If the wetland affected cannot be restored, money from any associated penalties shall be deposited in a dedicated account for the preservation or restoration of landscape processes and functions in the watershed in which the affected wetland is located. The City may coordinate its preservation or restoration activities with others to optimize the effectiveness of the restoration action.

Article III. Fish and Wildlife Habitat Areas

26.60.040 Exemption from fish and wildlife regulations.

A. See RMC 26.60.02122 for general exemptions to all sensitive areas.

B. The following activities shall be exempt from the provisions of this chapter related to fish and wildlife habitat, provided they are conducted using best management practices:

1. Activities involving artificially created habitat, including but not limited to grass-lined swales, irrigation and drainage ditches, detention facilities such as reservoirs, ponds, and landscape features, except for habitat areas created as mitigation.

C. Notwithstanding the exemption provided by this section, any otherwise exempt activities occurring in or near critical habitat areas shall comply with the intent of these standards and shall consider on-site alternatives that avoid or minimize potential habitat impacts.

26.60.041 Fish and wildlife habitat inventory maps.

The approximate location and extent of habitat areas within the city of Richland's planning area are shown on the maps adopted as part of this program, as provided in the City's SMP Inventory, Analysis and Characterization report. These maps shall be used as a general guide only for the assistance of property owners and other interested parties; boundaries are generalized. The actual type, extent, and boundaries of habitat areas shall be determined by a qualified professional according to the procedures, definitions, and criteria established by this article. In the event of any conflict between the habitat location or type shown on the city of Richland's maps and the criteria or standards of this article, the criteria and standards resulting from the field investigation shall control.

26.60.042 Fish and wildlife habitat buffer areas.

A. The establishment of buffer areas shall be required for regulated activities in or adjacent to habitat areas. Buffer shall consist of an undisturbed area of native vegetation established to protect the integrity, functions, and values of the affected habitat. Enhancement of buffers may be required

if a portion of the buffer has been cleared, or if tree cover is substantially less than a native climax community.

B. The following buffer widths are established:

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Table 26.60.42. Riparian Buffer Width

Regulatory Reach (see Environment Designation with Regulatory Reaches Map)	**Riparian Buffer Width (Feet)[12]**
A, C, I, T	50
B, U and all other Natural environment designation areas within various regulatory reaches except Reach Q	Entire shoreline jurisdiction
D, N, O, P,	75 except where roadway, canal, paved trail or parking area encroaches and then waterward edge of facility maintenance area, as applicable
E, F	100
G, I	75 except where roadway, canal, levee, paved trail or parking area encroaches and then waterward edge of facility maintenance area, as applicable
H, J, K	100 except where roadway, canal, levee, paved trail or parking area encroaches and then waterward edge of facility maintenance area, as applicable
L, Q, S	Waterward edge of existing levee, paved trail and/or parking maintenance area, as applicable
M	50 or waterward edge of existing levee, paved trail and/or parking maintenance area, as applicable
R	From the OHWM to the federal/private property boundary line[3]
[(1)] Measured from the OHWM or top of bank, as applicable [(2)] Accompanied by other sensitive area protections and stormwater management measures, as applicable [(3)] Administrative Buffer Adjustments do not apply.	

C. Buffers shall be measured, on a horizontal plane, from the OHWM as delineated by a qualified consultant. Required buffer widths shall reflect the sensitivity of the habitat and the type and intensity of human activity proposed to be conducted nearby. Buffers shall be determined by the City based on information in the wildlife report supplemented by its own investigations, the sensitivity and value of the habitat areas, the intensity and design of the proposed use, and adjacent uses and activities.

D. Administrative Buffer Adjustments.

1. The required buffer widths established in this SMP may be modified by the Shoreline Administrator for a development on existing legal lots of record in place at the time of adoption of this program, in accordance with the provisions of this section only where the applicant demonstrates all of the following:

    a. Averaging is necessary to avoid an extraordinary hardship to the applicant caused by circumstances peculiar to the property, and no feasible alternative exists;

    b. The designated buffer area contains variations in sensitivity to ecological impacts due to existing physical characteristics or the character of the buffer varies in slope, soils, or vegetation;

    c. The total area contained within the buffer after averaging is no less than that contained within the standard buffer prior to averaging;

    d. The minimum buffer width at its narrowest point shall not be less than seventy five (75) percent of the buffer width established under this SMP; and

    e. The buffer width averaging does not result in a net loss of ecological function.

2. Standard Buffer Reduction. Reductions of up to twenty-five (25) percent of the standard buffer may be approved if the applicant demonstrates to the satisfaction of the Shoreline Administrator that a mitigation plan developed by a qualified professional pursuant to GCC 24.12.520 (g) indicates that enhancing the buffer (by removing invasive plants or impervious surfaces, planting native vegetation, or installing habitat features or other means) will result in a reduced buffer that functions at a higher level than the existing standard buffer.

3. In-fill Development. In an effort to facilitate in-fill development in approved plats, the County may approve requests to reduce the standard shoreline buffers up to a maximum of fifty (50) percent for a new single-family residence and appurtenant structures in accordance with the following criteria:

    a. Where there are single-family residences within 150 feet on either side of the proposed residence in an existing plat, the buffer shall be determined as the greater of one of the following three options: 1) a common line drawn between the nearest corners of the nearest residence; 2) a common line calculated by the average of the nearest residence's existing buffer; or 3) a fifty (50) percent reduction of the standard buffer.

    b. Where there is only a residence located within 150 feet on one side of the proposed residence in an existing plat, the standard buffer shall be determined as the greater of a common line drawn between the nearest corner of the nearest residence and the nearest point of the standard buffer on the adjacent vacant lot, a common line calculated by the average of the nearest residence's setback and the standard buffer for the adjacent vacant lot, or a fifty (50) percent reduction of the standard buffer.

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E. The buffer width stated in subsection (B) of this section shall be increased when the qualified consultant determines, based upon a site-specific habitat analysis, that impacts on the habitat from a proposed development can only be mitigated by a greater buffer width. The standard habitat buffer width shall be increased:

1. When the adjacent land is susceptible to severe erosion and erosion control measures will not effectively prevent adverse habitat impacts; or

2. When the standard buffer has minimal or degraded vegetative cover that cannot be improved through enhancement; or

3. When the wetland provides habitat for a species that is particularly sensitive to disturbance (such as a threatened or endangered species), the width of the buffer should be increased to provide adequate protection for the species based on its particular, life-history needs; or

4. When the minimum buffer for a habitat extends into an area with a slope of greater than twenty- five (25) percent, the buffer shall be the greater of:

   a. The minimum buffer for that particular habitat; or

   b. Twenty-five (25) feet beyond the point where the slope becomes twenty-five (25) percent or less.

F. Low impact uses and activities which are consistent with the purpose and function of the habitat buffer and do not detract from its integrity may be permitted within the buffer depending on the sensitivity of the habitat involved. Examples of uses and activities which may be permitted in appropriate cases include pedestrian trails, viewing platforms, stormwater management facilities such as grass-lined swales and utility easements.

26.60.043 Fish and wildlife habitat alteration.

A. Adverse impacts to habitat functions and values shall be mitigated. Mitigation actions by an applicant or property owner shall occur ~~per~~ in accordance with RMC 26.20.020 Ecological Functions, No Net Loss including the specified mitigation sequence.

B. Where impacts cannot be avoided, the applicant or property owner shall seek to implement other appropriate mitigation actions in compliance with the intent, standards, and criteria of this section. Mitigation shall meetthe criteria of RMC 26.20.020 Ecological Functions, No Net Loss including the specified mitigation sequence. In an individual case, these actions may include consideration of alternative site plans and layouts, reductions in the density or scope of the proposal.

C. Alteration of habitat and/or their buffers may be permitted by the City subject to the following standards:

1. Critical Habitat. Alterations of critical habitat shall be avoided, subject to the reasonable use provisions of this chapter.

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2. Secondary Habitat. Alterations of secondary habitat may be permitted; provided, that the applicant mitigates adverse impacts consistent with the performance standards and other requirements of this chapter.

26.60.044 Fish and wildlife habitat performance standards and incentives.

A. The performance standards and criteria contained in this section shall be incorporated into plans submitted for regulated activities and shall:

1. Consider habitat in site planning and design;
2. Locate buildings and structures in a manner that preserves and minimizes adverse impacts to important habitat areas;
3. Integrate retained habitat into open space and landscaping, consistent with the provisions of all open space and landscaping requirements;
4. Consolidate habitat and vegetated open space in contiguous blocks where feasible;
5. Locate habitat contiguous to other habitat areas, open space or landscaped areas to contribute to a continuous system or corridor that provides connections to adjacent habitat areas and allows movement of wildlife;
6. Use native species in any landscaping of disturbed or undeveloped areas and in any enhancement of habitat or buffers;
7. Emphasize heterogeneity and structural diversity of vegetation in landscaping and food producing plants beneficial to wildlife;
8. Remove and/or control any noxious or undesirable species of plants and animals;
9. Preserve significant trees and/or snags, preferably in groups, consistent with achieving the objectives of these standards;
10. Buffers shall be preserved and shall be surveyed, staked, and fenced prior to any constructed work, including grading and clearing, may take place on the site; and
11. Temporary erosion and sedimentation controls, pursuant to an approved plan, shall be implemented during construction.

B. A vegetation management plan shall be submitted consistent with the requirements, goals, and standards of this chapter. The plan shall reflect the report prepared pursuant to RMC 22.10.310. Any required mitigation, including supplemental buffer plantings, shall be guaranteed by a bond or other acceptable security device is required to ensure bond or other security device shall be required to assuring successful establishment including an appropriate monitoring period. The amount of the performance and maintenance bond shall equal 125 percent of the cost of the mitigation project for a period of five years. The City may agree to reduce the bond in phases in proportion to work successfully completed over the period of the bond.

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C. As an incentive to encourage preservation of secondary habitat as defined in this article, the net amount of landscaping required by the city of Richland may be reduced by one-quarter acre for each one acre of secondary habitat and buffer preserved on the site; however, that amount cannot exceed 50 percent of the amount of required landscaping. The reduction shall be calculated on the basis of square feet of habitat preserved or enhanced and square feet required. Habitat and habitat buffer that is enhanced by the applicant may also qualify for this reduction. Preservation of secondary habitat shall be execution of an easement or other protective device acceptable to the city of Richland.

Article IV. Geologic Hazard Areas

26.60.050 Identification and definition.

A. Geologic hazard areas identification and designation shall be consistent with the minimum guideline classifications established in WAC 365-190-080(4), which include any future amendments to the code. Areas that are susceptible to one or more of the following types of hazards shall be classified as a geologic hazard area:

1. Erosion hazard;
2. Landslide hazard;
3. Seismic hazard; and
4. Mine hazard.

B. Erosion Hazard Areas. Those areas that are identified by the United States Department of Agriculture Soil Conservation Service as having a severe rill and inter-rill erosion hazard.

C. Landslide Hazard Areas. Those areas that are potentially subject to landslides based on a combination of geologic, topographic, and hydrologic factors. They include any areas susceptible because of any combination of bedrock, soil, slope (gradient), slope aspect, structure, hydrology, or other factors. Landslide hazard areas include, but are not limited to, the following types of areas:

1. Areas delineated by the United States Department of Agriculture Soil Conservation Service as having a severe limitation for building site development;
2. Areas designated as quaternary slumps, earthflows, mudflows, lahars, or landslides on maps published by the United States Geological Survey or Department of Natural Resources Division of Geology and Earth Resources;
3. Areas with all three of the following characteristics:
    a. Areas with slope steeper than 15 percent;
    b. Hillsides intersecting geologic contacts with a relatively permeable sediment overlying a relatively impermeable sediment or bedrock; and
    c. Springs or ground water seepage;

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4. Areas that have shown movement during the holocene epoch (from 10,000 years ago to the present) or which are underlain or covered by mass wastage debris of that epoch;

5. Areas with slopes that are parallel or subparallel to planes of weakness (such as bedding planes, joint systems, and fault planes) in subsurface materials;

6. Areas with slopes having gradients steeper than 80 percent subject to rockfall during seismic shaking;

7. Areas potentially unstable as a result of rapid stream incision, stream bank erosion and undercutting by wave action;

8. Areas that show evidence of, or on, an active alluvial fan presently or potentially subject to inundation by debris flows or catastrophic flooding; or

9. Areas with a slope of 40 percent or steeper and with a vertical relief of 10 or more feet except areas composed of consolidated rock. A slope is delineated by establishing its toe and top and measured by averaging the inclination over at least 10 feet of vertical relief.

D. Seismic Hazard Areas. Those areas subject to severe risk of damage as a result of earthquake induced ground shaking, slope failure, settlement, soil liquefaction, or surface faulting. One indicator of potential for future earthquake damage is a record of earthquake damage in the past. Ground shaking is the primary cause of earthquake damage in Washington. The strength of ground shaking is primarily affected by: (1) magnitude of an earthquake; (2) distance from the source of an earthquake; (3) type of thickness of geologic materials at the surface; and (4) type of subsurface geologic structure.

E. Mine Hazard Areas. Those areas underlain by, adjacent to, or affected by mine working areas as designated by the Washington State Department of Natural Resources.

26.60.051 Applicability to geological hazards.

The provisions of this article shall apply to any activity that occurs in or within 200 feet of a geologic hazard area unless otherwise exempt. These activities include but are not limited to the following:

A. Removing, excavating, disturbing or dredging soil, sand, gravel, minerals, organic matter or materials of any kind;

B. Dumping, discharging or filling with any material;

C. Driving piling or placing obstructions;

D. Constructing, reconstructing, demolishing, or altering the size of any structure or infrastructure which has an adverse effect on a geologic hazard area; destroying or altering vegetation through clearing or harvesting; and any project permit established in Chapter 19.20 RMC.

26.60.052 Geologic hazard inventory maps.

The approximate location and extent of geologic hazard areas within the city of Richland's planning area are shown on the sensitive areas maps adopted as part of this program, as provided in the City's SMP

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Inventory, Analysis and Characterization report. These maps should be used as a general guide only for the assistance of property owners and the city of Richland to identify and designate geologic hazard areas.

26.60.053 Preliminary assessment.

A. The city of Richland shall conduct a preliminary assessment of the proposed activity. The preliminary assessment shall consist of reviewing geologic hazard inventory maps as provided in the City's SMP Inventory, Analysis and Characterization report, conducting an on-site evaluation, and, if necessary, consulting with state and/or federal agencies to determine whether there is reasonable evidence that a proposed activity is within 200 feet of a geologic hazard area. In the event there is a disagreement as to whether the activity is within 200 feet of a geologic hazard area, a geologic report prepared by a qualified consultant as defined in RMC 26.80 shall be required, at the property owner or applicant's expense, to determine this issue.

B. If it is determined that there is reasonable evidence that a proposed activity is within 200 feet of a geologic hazard area, then geologic reports and studies are required at the property owner or applicant's expense.

26.60.054 Geologic reports and studies.

Geologic studies and reports shall comply with the requirements established in RMC 26.60.081.6. Permit process and application requirements.

26.60.055 Administrative evaluation of geologic reports and studies.

The city of Richland shall review the geologic reports and studies to determine the significant risks posed by the activity to life and property on and off the project site. The city of Richland may approve, conditionally approve or deny an activity, as appropriate, based on the degree to which significant risks are posed to public and private property and to the health and safety of the community. Conditional approval of the activity may include mitigation measures based on the geologic reports and studies. Where potential impacts of the activity cannot be effectively mitigated, or where the risk to public health, safety, and welfare of the community is significant notwithstanding mitigation, the activity shall be denied.

26.60.056 Assurance.

The city of Richland may require assurance from the owner or applicant and/or its geologic consultant that the activity creates a minimal risk of danger to life or property on or off the project site. Such assurance may include the following:

A. A letter from the geologic consultant who prepared the required study and report stating that the activity creates a minimal risk of danger to life or property on or off the project site; or

B. A letter from the owner or applicant stating its understanding and acceptance of any risk of injury or damage associated with the activity and agreeing to notify any future purchasers of the site, portions of the site, or structures located on the site of the geologic hazard.

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Article V. Critical Aquifer Recharge Areas Protection

26.60.057 Identification and definition.

Critical aquifer recharge areas (CARAs) are defined as those areas having a critical recharging effect on aquifer use for potable water in community systems. CARAs are classified and designated as follows:

A. Those areas designated as "Wellhead Protection Areas" pursuant to WAC 246-290-135(4) and the groundwater contribution area in WAC 246-291-100 (2)(e). Wellhead protection areas shall, for the purpose of this regulation, include the identified recharge areas associated with either Group A public water supply wells and those Group B wells with a wellhead protection plan filed with the City and/or Benton Franklin Health District; and

B. Any land identified in the Soil Survey of Benton County as having high potential for aquifer recharge, as determined by the Administrator.

In order to protect the public health and safety, prevent degradation of ground water and for potentially usable potable water, and to provide for regulations that prevent and control risks to the degradation of ground water quality and quantity, development in CARAs shall be subject to the standards described in this section.

26.60.058 Critical Aquifer Recharge Area maps.

The approximate location and extent of aquifer recharge areas within the city of Richland's shoreline planning area are shown on the sensitive areas maps adopted as part of this SMP, as provided in the City's SMP Inventory, Analysis and Characterization report. These maps should be used as a general guide only for the assistance of property owners and the city of Richland to identify and designate geologic hazard areas.

26.60.059 General exemptions.

The following activities shall be exempt from the CARA provisions of this section, provided they are conducted using best management practices for protecting surface and ground water quality:

A. Single-family residential development.

B. Development and improvement of parks, recreation facilities, open space, or conservation areas resulting in less than five percent total site impervious surface area that do not increase the use of a hazardous substance.

C. Group A public water system source development and associated infrastructure.

D. Public water supply aquifer storage and recovery (ASR) facilities.

E. Public water pipelines and supply storage structures.

F. The following underground storage tank (UST) systems, including any piping connected thereto:

1. Any UST system holding hazardous wastes subject to Subtitle C of the Federal Solid Waste Disposal Act, or a mixture of such hazardous waste and other regulated substances;

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2. Any wastewater treatment tank system that is part of a wastewater treatment facility regulated under Section 402 or 307(b) of the Clean Water Act;

3. Equipment or machinery that contains regulated substances for operational purposes such as hydraulic lift tanks and electrical equipment tanks;

4. Any UST system whose capacity is one hundred ten (110) gallons or less;

5. Any UST system that contains a de minimis concentration of regulated substances;

6. Any emergency spill or overflow containment UST system that is expeditiously emptied after use;

7. Farm or residential UST systems of one thousand one hundred (1,100) gallons or less capacity used for storing motor fuel for noncommercial purposes (i.e., not for resale);

8. UST systems used for storing heating oil for consumptive use on the premises where stored; except that such systems which store in excess of one thousand one hundred (1,100) gallons are subject to the release reporting requirements of WAC 173-360-372;

9. On-site domestic septic systems releasing less than five hundred (500) gallons of effluent per day and that are limited to a maximum density of one system per one acre;

10. Any pipeline facility (including gathering lines) regulated under:

    a. The Natural Gas Pipeline Safety Act of 1968 (49 U.S.C. App. 1671, et seq.), or

    b. The Hazardous Liquid Pipeline Safety Act of 1979 (49 U.S.C. App. 2001, et seq.), or

    c. Which is an intrastate pipeline facility regulated under state laws comparable to the provisions of the law referred to in Section 40.410.010(B)(3)(j)(1) or (2) of this definition;

11. Surface impoundments, pits, ponds, or lagoons;

12. Stormwater or wastewater collection systems;

13. Flow-through process tanks;

14. Liquid traps or associated gathering lines directly related to oil or gas production and gathering operations; or

15. Storage tanks situated in an underground area (such as a basement, cellar, vault, mineworking drift, shaft, or tunnel), if the storage tank is situated upon or above the surface of the floor.

26.60.060 Reports and Studies

Reports for CARAs shall be submitted to the City by the applicant for a development proposal activity not otherwise exempted as provided in Section 26.60.059 is proposed on a parcel within an aquifer recharge area. Requirements for a hydrogeologic assessment are found in Section 26.60.081, Permit process and application requirements.

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26.60.061 Performance Standards

A. Activities may only be permitted in a critical aquifer recharge area if the applicant can show that the proposed activity will not cause contaminants to enter the aquifer and that the proposed activity will not adversely affect the recharging of the aquifer.

B. The proposed activity must comply with the water source protection requirements and recommendations of the U.S. Environmental Protection Agency, Washington State Department of Health, Washington State Department of Ecology, and the Benton County Health Department.

C. The proposed activity must be designed and constructed in accordance with existing local, state and federal laws and regulations, and the Stormwater Management Manual for Eastern Washington, as amended (Ecology 2004) for those geographic areas covered under the Eastern Washington Phase II Municipal Stormwater Permit (Ecology 2007) or activities covered under the Ecology General Construction Permit (Ecology 2005) , and/or the locally adopted program, as applicable.

26.60.062 Uses Prohibited in Critical Aquifer Recharge Areas

The following activities and uses are prohibited in CARAs:

A. Landfills. Landfills, including hazardous or dangerous waste, municipal solid waste, special waste, woodwaste, and inert and demolition waste landfills;

B. Underground Injection Wells. Class I, III, and IV wells and subclasses 5F01, 5D03, 5F04, 5W09, 5W10, 5W11, 5W31, 5X13, 5X14, 5X15, 5W20, 5X28, and 5N24 of Class V wells;

C. Mining in critical aquifer recharge areas determined to be highly susceptible or vulnerable in a public water system Wellhead Protection Plan.

1. Metals and hard rock mining;
2. Sand and gravel mining.

D. Wood Treatment Facilities. Wood treatment facilities that allow any portion of the treatment process to occur over permeable surfaces (both natural and manmade);

E. Storage, Processing, or Disposal of Radioactive Substances. Facilities that store, process, or dispose of radioactive substances; and

F. Other Prohibited Uses or Activities

1. Activities that would significantly reduce the recharge to aquifers currently or potentially used as a potable water source;
2. Activities that would significantly reduce the recharge to aquifers that are a source of significant baseflow to a regulated stream.

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Article VI. Flood Hazard Areas

26.60.070 Identification and definition.

Frequently flooded areas shall be those floodways and associated floodplains designated by the Federal Emergency Management Agency (FEMA) flood hazard classifications as delineated on the most current available Flood Insurance Rate Maps for the City, or as subsequently revised by FEMA, as being within the 100-year flood plain, or those floodways and associated floodplains delineated by a comprehensive flood hazard management plan adopted by the City, as being within the 100-year floodplain or having experienced historic flooding; or channel migration zones (CMZ) identified through mapping provided in the City's SMP Inventory, Analysis and Characterization report. The CMZ is considered to be that area of a stream channel which may erode as a result of normal and naturally occurring processes and has been mapped consistent with WAC 173-26-221(3)(b).

26.60.071 Maps and References

A. The approximate location and extent of flood hazard areas within the city of Richland's planning area are shown on the sensitive areas maps adopted as part of this SMP, including but not limited to the most current available FEMA Flood Insurance Rate Maps (FIRM) as provided in RMC 23.34.050 F district – Adoption of study designating areas of special flood hazard and Channel Migration Zone (CMZ) mapping provided in the City's SMP Inventory, Analysis and Characterization report. These maps should be used as a general guide only for the assistance of property owners and the city of Richland to identify and designate flood hazard areas.

B. Applicants for shoreline development or modification may submit a site-specific CMZ study if they demonstrate these conditions do not exist on the subject property and the map is not accurate. The CMZ study must be prepared consistent with WAC 173-26-221(3)(b), and may include, but is not limited to, historic aerial photographs, topographic mapping, flooding records, and field verification. The CMZ must be prepared by a licensed geologist or engineer with at least five years of applied experience in assessing fluvial geomorphic processes and channel response.

26.60.072 Protection Standards

A. All development within frequently flooded areas shall comply with the city code Chapters 23.12, Floodplain Use District and 23.34, Floodplain Combining District, the City Shoreline Master Program, the Uniform Building Code regarding structural safeguards to reduce risk to human life, health and property from flooding, and other pertinent ordinances and codes.

B. Any use or development shall not alter the normal movement of surface water in a manner that would cause the unnatural diversion of floodwater to otherwise flood-free areas.

C. CMZs shall be regulated as uses in Chapters 23.12, Floodplain Use District, and shall apply only to the Yakima River.

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Article VII. General Information

26.60.080 General exemptions.

The following activities shall be exempt from the provisions of this chapter, provided they are conducted using best management practices:

A. Existing and ongoing agricultural activities, as defined in RMC 26.70;

B. Maintenance, operation and reconstruction of existing roads, streets, utilities, and associated structures; provided, that reconstruction of any structures may not increase the impervious area;

C. Normal maintenance, repair and reconstruction of residential or commercial structures; provided, that reconstruction of any structures may not increase the impervious floor area;

D. Site investigative work and studies necessary for preparing land use applications, including soils tests, water quality studies, wildlife studies and similar tests and investigations; provided, that any disturbance of sensitive areas shall be the minimum necessary to carry out the work or studies;

E. Educational activities, scientific research, and outdoor recreational activities, including but not limited to interpretive fields, bird watching, fishing and hiking, that will not have a significant effect on the habitat area;

F. Public agency emergency activities necessary to prevent an immediate threat to public health, safety or property, provided that retroactive mitigation is required to restore a site to a pre-emergency response condition to ensure no net loss of ecological functions;

G. Prior to the effective date of the ordinance codified in this chapter any of the following activities that have met all conditions of approval in a timely manner and are consistent with the reasonable use provisions of this chapter:

1. Complete applications as defined by the appropriate ordinance;

2. Approved preliminary plats; and

3. Development of legally created lots which have been recorded with Benton County;

H. Minor activities not mentioned above and determined by the community and development services group to pose minimal risk to the public health, safety, and general welfare.

26.60.081 Permit process and application requirements.

A. Preapplication Conference. All applicants are encouraged to meet with the planning and development services manager of the city of Richland or his or her representative prior to submitting an application subject to these regulations. The purpose of this meeting shall be to discuss the city of Richland's sensitive areas requirements, processes, and procedures; to review any conceptual site plans prepared by the applicant; to discuss appropriate investigative techniques and methodology; to identify potential impacts and mitigation measures; and to familiarize the applicant with state and federal programs, particularly those pertaining to

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wetlands. Such conference shall be for the convenience of the applicant and any recommendations shall not be binding on the applicant or the city of Richland.

B. Application Requirements. The information required by this section should be coordinated with reporting requirements required by this section for any other sensitive area located on the site.

1. Prior to the issuance of a SEPA threshold determination for a proposal, all Sensitive Area reports relevant to the site must be submitted to the city of Richland for review upon request of the planning and development services manager if such sensitive areas are indicated on any portion of the site. The purpose of the reports is to determine the extent and function sensitive areas where regulated activities are proposed. The reports will also be used by the city of Richland to determine the appropriate implementation of sensitive area regulations and the extent to which potential impacts of proposed activities are addressed by existing regulations that provide environmental analysis and measures that avoid or otherwise mitigate the probable specific adverse environmental impacts of proposed activities.

2. In addition, wetland boundaries and other relevant physical features must be staked and flagged in the field by a qualified consultant.

3. The report on any sensitive area shall include the following information:

    a. Vicinity map;

    b. A map showing:

        i. Site boundary, property lines and roads;

        ii. Internal property lines, rights-of-way, easements, etc.;

        iii. Existing physical features of the site including buildings, fences, and other structures, roads, parking lots, utilities, water bodies, etc.;

        iv. Contours at the smallest readily available intervals, preferably at five-foot intervals; and

        v. For large (50 acres or larger) or complex projects with wetlands or habitat areas, an aerial photo with overlays displaying the site boundaries and wetland delineation or habitat area(s) may be required. Generally, an orthophotograph at a scale of one inch equals 400 feet or greater (such as one inch equals 200 feet) should be used. If an orthophotograph is not available, the center of a small scale (e.g., one inch equals 2,000 feet) aerial enlarged to one inch equals 400 feet may be used;

    c. The report for any sensitive area must describe:

        i. Locational information including legal description and address;

        ii. All natural and manmade features within 150 feet of the site boundary;

        iii. General site conditions including topography, acreage, and water bodies or wetlands; and

        iv. Identification of any areas that have previously been disturbed or degraded by human activity or natural processes.

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4. In addition to the general report requirements, a report on wetlands shall include the following information:
    a. Delineated wetland boundary;
    b. The wetland boundary must be accurately drawn at an appropriate engineering scale such that information shown is not cramped or illegible. The drawing shall be prepared by a surveyor. Generally, a scale of one inch equals 40 feet or greater (such as one inch equals 20 feet) should be used. Existing features must be distinguished from proposed features;
    c. Site designated on the wetlands areas maps described in RMC 26.60.022.030;
    d. Hydrologic mapping showing patterns of water movement into, through, and out of the site area;
    e. Location of all test holes and vegetation sample sites, numbered to correspond with flagging in the field and field data sheets;
    f. Field data sheets from the Federal Manual, numbered to correspond with sample site locations as staked and flagged in the field; and describe:
        i. Specific descriptions of plant communities, soils, and hydrology;
        ii. A summary of existing wetland function and value; and
        iii. A summary of proposed wetland and buffer alterations, impacts, and the need for the alterations as proposed. Potential impacts may include but are not limited to loss of flood storage potential, loss of wildlife habitat, expected decreases in species diversity or quantity, changes in water quality, increases in human intrusion, and impacts on associated wetland or water resources. If alteration of a Category I, II, III, or IV wetland is proposed, a wetland mitigation plan is required according to the standards of RMC 26.60.027.
        iv. Describe how mitigation meets the criteria of RMC 26.20.020 Ecological Functions, No Net Loss including the specified mitigation sequence..
5. In addition to the general report requirements, a report on fish and wildlife habitats shall include the following information. (The level of detail contained in the report shall generally reflect the size and complexity of the proposal and the function and value of the habitat. The City may require field studies at the applicant's expense in appropriate cases.
    a. A map of vegetative cover types, reflecting the general boundaries of different plant communities on the site;
    b. A description of the species typically associated with the cover types, including an identification of any critical wildlife species expected to be found;
    c. The results of searches of Washington State Department of Natural Resource's Natural Heritage and Washington State Department of Wildlife's nongame data system databases, if available;
    d. Additional information on species occurrence available from the city of Richland or Benton County; and
    e. Include the following descriptions:
        i. The layers, diversity and variety of habitat found on the site;

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ii. Identification of edges between habitat types and any species commonly associated with that habitat;

iii. The location of any migration or movement corridors;

iv. A narrative summary of existing habitat functions and values; and

v. A summary of proposed habitat and buffer alterations, impacts, and mitigation. Potential impacts may include but are not limited to clearing of vegetation, fragmentation of wildlife habitat, expected decreases in species diversity or quantity, changes in water quality, increases in human intrusion, and impacts on wetlands or water resources.

vi. Describe how mitigation meets the criteria of RMC 26.20.020 Ecological Functions, No Net Loss including the specified mitigation sequence.

6. In addition to the general report requirements, applicants for activities within 200 feet of geologic hazard areas shall conduct technical studies and reports which include the following:

a. Review site history and available information;

b. Conduct a surface reconnaissance of the site and adjacent areas;

c. Conduct subsurface exploration suitable to the site and proposal to assess geotechnical geohydrologic conditions;

d. Conduct a detailed stability analysis of the existing landslide that demonstrates that the proposal will result in a suitable factor of safety during and following site development;

e. Characterize soils, geology and drainage;

f. Characterize ground water conditions including the presence of any public or private wells in the immediate vicinity; and

g. Analyze proposed clearing, grading and construction activities, including construction scheduling; potential direct and indirect, on-site and off-site, impacts from development; and proposed mitigation measures, including any special construction techniques, monitoring or inspection programs (during and after construction), and surface water management controls.

h. Evaluate the presence of geologic conditions giving rise to geologic hazards;

i. Evaluate the safety and appropriateness of the proposed activities;

j. Recommend appropriate construction practices, monitoring programs and other mitigating measures required to ensure achievement of the purpose and intent of these regulations. The format of any required reports shall be determined by the city of Richland;

k. Recommend surface water management controls during construction and operation;

l. Propose construction scheduling;

m. Recommend site monitoring and inspection during construction;

7. In addition to the general report requirements, a report for Critical Aquifer Recharge Areas must meet the following requirements:

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a. Available information regarding geologic and hydrogeologic characteristics of the site including the surface location of all CARAs located on site or immediately adjacent to the site, and permeability of the unsaturated zone;

b. Ground water depth, flow direction, and gradient based on available information;

c. Currently available data on wells and springs within one thousand feet of the project area;

d. Location of other sensitive areas, including surface waters, within one thousand feet of the project area;

e. Available historic water quality data for the area to be affected by the proposed activity; and

f. Evaluation of the potential impact of the proposed development on groundwater quality, both short and long term, based on an assessment of the cumulative impacts of the proposal in combination with existing and potential future land use activities; and

g. A proposed mitigation plan, as applicable. Applicants must demonstrate how they will integrate necessary and appropriate best management practices to prevent degradation of groundwater.

8. In addition to the general report requirements, a report on floodplain development shall include the information required by RMC 23.34.100 Floodplain district – Development permit.

C. Permit Process. This section is not intended to create a separate permit process for development proposals. To the extent possible, the city of Richland shall consolidate and integrate the review and processing of sensitive area-related aspects of proposals with other land use and environmental considerations and approvals.

26.60.082 Requirements of qualified consultants.

All reports or studies are to be performed by a professional, licensed, or qualified as a consultant, in the sensitive area at issue. The city of Richland shall determine whether a person is a qualified consultant based on the criteria established in RMC 26.80.

26.60.083 Land divisions.

All proposed divisions of land which include regulated sensitive areas shall comply with the following procedure and development standard:

A. New lots shall contain at least one building site, including access that is suitable for development and is not within a portion of the regulated sensitive area or its associated buffer or setback in which a restriction of prohibition on alteration is provided by this program.

26.60.084 General procedural provisions.

A. Interpretations and Conflicts. Any question regarding interpretation of these regulations shall be resolved pursuant to the procedures set forth in RMC 23.70.070.

B. Penalties and Enforcement. Any person who has violated any provision of this chapter shall have committed a civil infraction subject to a civil penalty as set forth in RMC 10.02.050(E).

Provided, if the same violator has been found to have committed an infraction violation for the same or similar conduct two separate times, with the violations occurring at the same location and involving the same or similar sections of the Richland Municipal Code or other similar codes, the third or subsequent violation shall constitute a misdemeanor, punishable as provided in RMC 1.30.010 for criminal offenses.

C. Appeals from permit decisions shall be governed by the procedures set forth in Chapter 19.70 of the Richland Municipal Code

26.70 No special duty created.

It is the purpose of this chapter to provide for the health, welfare, and safety of the general public, and not to create or otherwise establish or designate any particular class or group of persons who will or should be especially protected or benefited by the terms of this chapter. No provision or term used in this chapter is intended to impose any duty whatsoever upon the city or any of its officers, agents, or employees for whom the implementation or enforcement of this chapter shall be discretionary and not mandatory.

Nothing contained in this chapter is intended to be, nor shall be construed to create or form the basis for any liability on the part of the city or its officers, agents, and employees for any injury or damage resulting from the failure of any premises to abate a nuisance or to comply with the provisions of this chapter or be a reason or a consequence of any inspector, notice, or order, in connection with the implementation or enforcement of this chapter, or by reason of any action of the city related in any manner to enforcement of this chapter by its officers, agents or employees.

26.71 Severability.

The provisions of this chapter are declared to be separate and severable. The invalidity of any clause, sentence, paragraph, subdivision, section, or portion of this chapter to any person or circumstance shall not affect the validity of the remainder of this chapter or the validity of its application to other persons or circumstances.

26.80 Definitions

"Agriculture" or "agricultural activities" means agricultural uses and practices including, but not limited to, producing, breeding, or increasing agricultural products; rotating and changing agricultural crops; allowing land used for agricultural activities to lie fallow (plowed and tilled, but left unseeded); allowing land used for agricultural activities to lie dormant as a result of adverse agricultural market conditions; allowing land used for agricultural activities to lie dormant because the land is enrolled in a local, state, or federal conservation program, or the land is subject to a conservation easement; conducting agricultural operations; maintaining, repairing, and replacing agricultural equipment; maintaining, repairing, and replacing agricultural facilities, provided that the replacement facility is no closer to the shoreline than the original facility; and maintaining agricultural lands under production or cultivation.

Agricultural equipment and agricultural facilities includes, but is not limited to:

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A. The following used in agricultural operations: Equipment; machinery; constructed shelters, buildings, and ponds; fences; upland finfish rearing facilities; water diversion, withdrawal, conveyance, and use equipment and facilities including, but not limited to, pumps, pipes, tapes, canals, ditches, and drains;

B. Corridors and facilities for transporting personnel, livestock, and equipment to, from, and within agricultural lands;

C. Farm residences and associated equipment, lands, and facilities; and

D. Roadside stands and on-farm markets for marketing fruit or vegetables.

"Alteration" means a human action which results in a physical change to the existing condition of land or improvements including but not limited to: clearing vegetation, filling and grading and construction of structures or facilities including impervious surfaces.

"Applicant" means the person, party, firm, partnership, corporation, or other entity that applies for any permit or approval pursuant to this chapter and may include applicants for other approvals pursuant to other provisions of the Richland Municipal Code.

"Artificially created wetland" means wetlands intentionally created action from nonwetland sites, including but not limited to irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscaping amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands may include those artificial wetlands intentionally created from nonwetland areas to mitigate the conversion of wetlands.

"Aquaculture" the culture or farming of fish, shellfish, or other aquatic plants and animals. Aquaculture does not include the harvest of wild geoduck associated with the state managed wildstock geoduck fishery.

"Average grade level" means the average of the natural or existing topography of the portion of the lot, parcel, or tract of real property which will be directly under the proposed building or structure. In the case of structures to be built over water, average grade level shall be the elevation of the ordinary high water mark. Calculation of the average grade level shall be made by averaging the ground elevations at the midpoint of all exterior walls of the proposed building or structure.

"Best management practices (BMPs)" excludes existing, ongoing, and new agricultural and land management activities inside and outside of sensitive areas and their buffers. BMPs are current and evolving conservation practices, or systems of practices, management or operational measures, or design and construction techniques; or normal and accepted industry standards that are applied to land use activity in a manner which:

A. Control soil loss and reduces water surface and ground water quality degradation caused by nutrients, wastes, toxics, and sediment;

B. Mitigate adverse impacts to the natural chemical, physical and biological environment of the city;

C. Utilize the city's natural resources on a long-term, sustainable yield basis;

D. Protect trees, vegetation, and soils designated to be retained during and following site construction and use native plant species appropriate to the site for revegetation of disturbed areas; and

E. Prevent contamination of surface and groundwater resources, and protect from impacts to native and other desirable vegetation with BMPs for chemical pesticide, herbicide, and fertilizer applications.

"Bioengineering" means the use of biological elements, such as the planting of vegetation, often in conjunction with engineered systems, to provide a structural shoreline stabilization measure with minimal negative impact to the shoreline ecology.

"Boating facility" for the purposes of this Program means any public or private facility for mooring, storing, or transfer of materials from vessels on the water, such as docks and piers, including on-land related facilities such as approaches and ramps, and includes any private and publicly accessible launch sites or facilities. A boating facility does not include on-land accessory facilities such as parking or storage.

"Buffer" means an area adjacent to a sensitive area that functions to avoid loss or diminution of the ecologic functions and values of the sensitive area. Specifically, a buffer may:

- Preserve the ecologic functions and values of a system including, but not limited to, providing microclimate conditions, shading, input of organic material, and sediments; room for variation and changes in natural wetland, river, or stream characteristics; providing for habitat for lifecycle stages of species normally associated with the resource; and

- Physically isolate a sensitive area such as a wetland, river, or stream from potential disturbance and harmful intrusion from surrounding uses using distance, height, visual, and/or sound barriers, and generally including dense native vegetation, but also may include human-made features such as fences and other barriers;

- Act to minimize risk to the public from loss of life, well-being, or property damage resulting from natural disasters such as from landslide or flooding.

"Building" means a roofed and walled structure built for permanent or temporary use.

"Building height in Shoreline Management Act jurisdiction" only means the vertical distance between average grade and the highest part of the coping of a flat roof, or the deck line of a mansard roof, or the highest point of the highest gable of a pitched or hipped roof. The height of a stepped or terraced building is the maximum height of that segment of the building with all roof elements at a different elevation than adjacent steps or terraces. Provided, That television antennas, chimneys, and similar appurtenances shall not be used in calculating height, except where such appurtenances obstruct the view of the shoreline of a substantial number of residences on areas adjoining such shorelines. Temporary construction equipment is excluded in this calculation.

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"Bulkhead" means a structure of timber, concrete, steel, rock, or similar substance located parallel to the shore, which has as its primary purpose to contain and prevent the loss of soil by erosion, wave, or current action.

"Channel migration zone" means the area along a river within which the channel(s) can be reasonably predicted to migrate over time as a result of natural and normally occurring hydrological and related processes when considered with the characteristics of the river and its surroundings. For the purpose of this program, the channel migration zone excludes areas separated from the active river channel by legally existing artificial structures that are likely to restrain channel migration including, but not limited to, flood control facilities, transportation facilities, and structures built above or constructed to remain intact through the 100-year flood.

"Clearing" means the removal of trees, brush, grass, ground cover, or other vegetative matter from a site which exposes the earth's surface of the site.

"Creation" (wetland) means the manipulation of the physical, chemical, or biological characteristics present to develop a wetland on an upland or deepwater site, where a wetland did not previously exist. Establishment results in a gain in wetland acreage [and function]. [A typical action is the excavation of upland soils to elevations that will produce a wetland hydroperiod and hydric soils, and support the growth of hydrophytic plant species (Gwin et al. 1999).]

"Sensitive areas" are those areas and ecosystems as defined under chapter 36.70A RCW and include:

- Wetlands;
- Areas with a critical recharging effect on aquifers used for potable waters;
- Fish and wildlife habitat conservation areas;
- Frequently flooded areas; and
- Geologically hazardous areas.

"Critical habitat" or "critical wildlife habitat" means habitat areas associated with threatened, endangered, sensitive, or priority species of plants or wildlife which, if altered, could reduce the likelihood that the species will maintain and reproduce over the long term. Such areas are documented with reference to lists, categories and definitions of species promulgated by the Washington Department of Wildlife (Non-Game Data System Special Animal Species) as identified in WAC 232-12-011 or 232-12-014 and in the priority habitat species lists compiled in compliance with WAC 365-190-080; or by rules and regulations adopted currently or hereafter by the U.S. Fish and Wildlife Service.

"Critical habitat" also includes the following types of areas:

A. Regionally rare native fish and wildlife habitat (i.e., one of five or fewer examples of the habitat within the Mid-Columbia region).
B. Fish and wildlife areas with irreplaceable ecological functions, including but not necessarily limited to the following:

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1. The areas listed as a national wildlife refuge, national park, natural area preserve or any preserve or reserve designated under WAC 332-30-151;
2. The Lake Wallula wildlife habitat areas managed by the U.S. Army Corps of Engineers, including the Yakima River Wildlife Management Area and the Hanford Islands in the Columbia River managed by the U.S. Fish and Wildlife Service;
3. Category I wetlands as defined in RMC 22.10.100;
4. State nature area preserves or natural resource conservation areas identified by state law and managed by the Department of Natural Resources;
5. Documented habitat, other than accidental presence, of threatened or endangered species;
6. Documented habitat, other than accidental presence, of regional or national significance for migrating birds.

"Cumulative impacts" are the results of incremental actions when added to past, present, and reasonably foreseeable future actions. Cumulative impacts can be deemed substantial and subject to mitigation conditions even though they may consist of individual actions having relatively minor impacts.

"Development" means a use consisting of the construction or exterior alteration of structures; dredging; drilling; dumping; filling; removal of any sand, gravel, or minerals; bulkheading; driving of piling; placing of obstructions; or any project of a permanent or temporary nature which interferes with the normal public use of the surface of the waters overlying lands subject to the act at any stage of water level;

"Developer" means any person, firm, corporation, or agency engaged in the act of development.

"Development plan" means a proposal for development consisting of such site plans, vicinity maps, drawings, illustrations, documents, and conditions as may be necessary and appropriate.

"Dock" means a place for vessels to moor and may include a variety of facilities including piers and floating structures extending from the shore over the water. This definition does not include over-water trails.

"Dredging" is the removal of earth, sand, gravel, silt, or debris from below the ordinary high water mark of any river, stream, pond, lake, or other water body and beneath the area of seasonal saturation of any wetland.

"Earth/earth material" means naturally occurring rock, soil, stone, sediment, or combination thereof.

"Ecological function" means the work performed or role played by the physical, chemical, and biological processes that contribute to the maintenance of the aquatic and terrestrial environments that constitute an element of a natural ecosystem.

"Ecosystem-wide processes" means the suite of naturally occurring physical and geologic processes of erosion, transport, and deposition; and specific chemical processes that shape landforms within a specific shoreline ecosystem and determine both the types of habitat and the associated ecological functions.

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"Enhancement" (habitats in general) means the improvement of existing habitat such as by increasing plant density or structural diversity, or by removing nonindigenous or noxious species.

Enhancement (wetlands) means the manipulation of the physical, chemical, or biological characteristics of a wetland to heighten, intensify, or improve specific function(s) or to change the growth stage or composition of the vegetation present. Enhancement is undertaken for specified purposes such as water quality improvement, flood water retention, or wildlife habitat. Enhancement results in a change in wetland function(s) and can lead to a decline in other wetland functions, but does not result in a gain in wetland acres. [Examples are planting vegetation, controlling non-native or invasive species, and modifying site elevations to alter hydroperiods.]

"Erosion" means wearing away of rock or soil by the gradual detachment of soil and rock fragments by water, wind, ice, and other mechanical and chemical forces.

"Erosion Hazard Areas" are areas identified by the United States Department of Agriculture Soil Conservation Service as having a severe rill and inter-rill erosion hazard.

"Excavation" means the mechanical removal of earth material.

"Existing and ongoing agricultural activities" include those activities conducted on lands defined in RCW 84.34.020(2), and those activities involved in the production of crops and livestock, including, but not limited to, operation and maintenance of farm and stock ponds or drainage ditches, irrigation systems, changes between agricultural activities, and normal operation, maintenance or repair of existing serviceable structures, facilities or improved areas. Activities that bring a previously nonagricultural area into agricultural use are not part of an ongoing activity. An operation ceases to be ongoing when the area on which it was conducted is proposed for conversion to a nonagricultural use or has lain idle for a period of longer than five years, unless the idle land is registered in a federal or state soils conservation program.

"Exotic" means a species, plant community type, or habitat that has been introduced or modified as a result of human actions.

"Fair market value" means the open market bid price for conducting construction of the work, using the equipment and facilities, and purchase of the goods, services, and materials necessary to accomplish the development. This would normally equate to the cost of hiring a contractor to undertake the development from start to finish, including the cost of labor, materials, equipment, and facility usage, transportation, and contractor overhead and profit. The fair market value of the development shall include the fair market value of any donated, contributed, or found labor, equipment, or materials.

"Federal Manual" or "federal methodology" means the methodology for identifying wetlands in the field as described in the current Federal Manual for Identifying and Delineating Jurisdictional Wetlands.

"Feasible" means that an action, such as a development project, mitigation, or restoration requirement, meets all of the following conditions:

A. The action can be accomplished with technologies and methods that have been used in the past in similar circumstances, or studies or tests have demonstrated in similar circumstances that such approaches are currently available and likely to achieve the intended results;

B. The action provides a reasonable likelihood of achieving its intended purpose; and

C. The action does not physically preclude achieving the project's primary intended legal use.

D. In cases where these guidelines require certain actions unless they are infeasible, the burden of proving infeasibility is on the applicant. In determining an action's infeasibility, the City may weigh the action's relative public costs and public benefits, considered in short- and long-term timeframes.

"Fill" means earth or any other substance or material placed in or on the ground, including earth retaining structures, in an area waterward of the OHWM or in wetlands, it includes any action that raises the elevation or creates dry land.

"Filling" means the act of transporting or placing (by any manner or mechanism) fill material from, to, or on any soil surface, sediment surface, or other fill material.

"Flood plain" is synonymous with one hundred-year flood plain and means that land area susceptible to inundation with a one percent chance of being equaled or exceeded in any given year. The limit of this area shall be based upon flood ordinance regulation maps or a reasonable method which meets the objectives of the act.

"Floodway" means the channel of a river or other watercourse and the adjacent land areas that either:

- Has been established in Federal Emergency Management Agency Flood Insurance Rate Maps or floodway maps; or

- Consists of those portions of a river valley lying waterward from the outer limits of a watercourse upon which flood waters are carried during periods of flooding that occur with reasonable regularity, although not necessarily annually, said floodway being identified, under normal conditions, by changes in surface soil conditions or changes in types or quality of vegetative ground cover condition, topography, or other indicators of flooding that occurs with reasonable regularity, although not necessarily annually.

- Regardless of the method used to identify the floodway, the floodway shall not include those lands that can reasonably be expected to be protected from flood waters by flood risk reduction devices maintained by or maintained under license from the federal government, the state, or a political subdivision of the state.

"Geotechnical report or geotechnical analysis" means a scientific study or evaluation conducted by a qualified expert that includes a description of the ground and surface hydrology and geology, estimates of susceptibility to erosion, sliding, earthquake, or other geological events, and the extent of risk to the health and safety of persons and property. Such a report shall include conclusions and recommendations regarding the effect of the proposed development on geologic conditions, the adequacy of the site to be developed, the impacts of the proposed development, alternative approaches to the proposed development, and measures to mitigate potential site-specific and cumulative geological and hydrological impacts of the proposed development, including the potential adverse impacts to adjacent and down-

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current properties. Geotechnical reports shall conform to accepted technical standards and must be prepared by qualified professional engineers or geologists who have professional expertise regarding the regional and local geology and processes.

"Grading" means the movement or redistribution of the soil, sand, rock, gravel, sediment, or other material on a site in a manner that alters the natural contour of the land.

“Habitat management” means management of land to maintain species in suitable habitats within their natural geographic distribution so that isolated subpopulations are not created. This does not imply maintaining all habitat or individuals of all species in all cases.

“Habitat map” means maps of plant cover types/communities (titled: Fish and Wildlife Conservation Areas) adopted by the city of Richland to indicate the potential presence of wildlife species.

“High impact land use” means land uses that are generally associated with relatively high levels of human activity or disturbance, development of structures, or substantial wetland habitat impacts. Depending on their context, high impact land uses can include, but are not limited to, residential buildings and structures, active recreation areas and facilities, commercial and industrial land uses, buildings and structures, and similar uses and activities which create a significant potential for impacts to wetlands. The context for determining the impact of a land use includes the sensitivity of the wetland, the density and intensity of adjacent development, the amount of impervious surface, the orientation of proposed buildings and structures, and other relevant factors as determined in an individual case.

“In-kind mitigation” means replacement of wetlands with substitute wetlands whose characteristics closely approximate those destroyed or degraded by a regulated activity.

“Instream structures” are structures located waterward of the ordinary high water mark that either cause or have the potential to cause water impoundment or the diversion, obstruction, or modification of water flow.

“Landslide Hazard Areas” are areas that are potentially subject to landslides based on a combination of geologic, topographic, and hydrologic factors. They include any areas susceptible because of any combination of bedrock, soil, slope (gradient), slope aspect, structure, hydrology, or other factors. Landslide hazard areas include, but are not limited to, the following types of areas:

1. Areas delineated by the United States Department of Agriculture Soil Conservation Service as having a severe limitation for building site development;
2. Areas designated as quaternary slumps, earthflows, mudflows, lahars, or landslides on maps published by the United States Geological Survey or Department of Natural Resources Division of Geology and Earth Resources;
3. Areas with all three of the following characteristics:
    a. Areas with slope steeper than 15 percent;
    b. Hillsides intersecting geologic contacts with a relatively permeable sediment overlying a relatively impermeable sediment or bedrock; and

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c. Springs or ground water seepage;

4. Areas that have shown movement during the holocene epoch (from 10,000 years ago to the present) or which are underlain or covered by mass wastage debris of that epoch;

5. Areas with slopes that are parallel or subparallel to planes of weakness (such as bedding planes, joint systems, and fault planes) in subsurface materials;

6. Areas with slopes having gradients steeper than 80 percent subject to rockfall during seismic shaking;

7. Areas potentially unstable as a result of rapid stream incision, stream bank erosion and undercutting by wave action;

8. Areas that show evidence of, or on, an active alluvial fan presently or potentially subject to inundation by debris flows or catastrophic flooding; or

9. Areas with a slope of 40 percent or steeper and with a vertical relief of 10 or more feet except areas composed of consolidated rock. A slope is delineated by establishing its toe and top and measured by averaging the inclination over at least 10 feet of vertical relief.

"Local utility" means public or private utilities normally servicing a neighborhood or defined subarea in the City, e.g., telephone exchanges; sanitary sewer; stormwater facilities; distribution lines; electrical distribution less than fifty-five (55) kilovolts; telephone; cable television, etc.

"Low impact land use" means land uses that are typically associated with relatively low levels of human activity, disturbance or development and that are conducted in a manner as to minimize impacts to the buffer. Low impact land uses may include:

A. Conservation or restoration activities aimed at protecting the soil, water, vegetation, or wildlife;

B. Passive recreation, including walkways or trails located in the outer 25 percent of the buffer area;

C. Educational and scientific research activities, provided prior approval is obtained from the approval authority;

D. Normal and routine maintenance and repair of any existing public or private facilities, provided appropriate measures are undertaken to minimize impacts to the wetland and its buffer and that disturbed areas are restored immediately to a natural condition; or

E. Agricultural land uses that do not create a significant probable wetland impact.

"Marina" means any commercial or club-owned facility consisting of docks or piers serving five or more vessels or a shared moorage serving a subdivision serving 10 or more vessels.

"Mining" means the removal of sand, gravel, soil, minerals, and other earth materials for commercial and other uses.

"Mitigation" involves actions that proceed in sequence from the highest to the lowest priority as follows:

A. Avoiding impacts to environmentally sensitive areas by not taking action or parts of actions.

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B. Minimizing impact by limiting the degree or magnitude of the action and its implementation.

C. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.

D. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.

E. Compensating for the impact by replacing or providing substitute resources or environments.

While monitoring alone is not considered mitigation for purposes of these regulations, it may be part of a comprehensive mitigation program.

"Mixed use" within an area subject to the jurisdiction of the Shoreline Management Act means a combination of compatible uses within one development, in which water-oriented and non-water-oriented uses are included.

"Multiple use" means a combination of compatible uses within one development, and may include commercial, multi-family, and recreation uses, among others. The term "mixed use" in Title 23, Zoning Regulations may be used in the same sense as "multiple use" in Title 26, Shoreline Management.

"Native vegetation" means vegetation indigenous to the area in question.

"Natural or existing topography" means the topography of the lot, parcel, or tract of real property immediately prior to any site preparation or grading, including excavation or filling;

"Non-conforming lot, use, structure, or site" means a pre-existing parcel which was lawfully created prior to the effective date of this program but does not meet minimum size or other dimensional requirements, a use which was legally established prior to the effective date of this program, which would not be permitted as a new use in the area in which it is located under the terms of this program, or a structure lawfully erected prior to the effective date of this program or a site altered or improved which does not meet current standards for setbacks, buffers, vegetation conservation, landscaping, public access, screening, or other regulations for the area in which it is located due to changes in regulations since its establishment.

"No net loss of ecological functions" is the maintenance of existing ecological processes and functions at the level that existed at the time of approval of relevant policies and regulations.

No net loss of ecological functions on the level of the City means that the ecological processes and functions are maintained within a watershed or other functional catchment area. Regulations may result in localized cumulative impacts or loss of some localized ecological processes and functions, as long as the ecological processes and functions of the system are maintained. Maintenance of system ecological processes and functions may require compensating measures that offset localized degradation.

On a project basis, no net loss means that permitted use or alteration of a site will not result in on-site or off-site deterioration of the existing condition of ecological functions that existed prior to initiation of use or alterations as a direct or indirect result of the project.

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No net loss is achieved both through avoidance and minimization of adverse impacts as well as compensation for impacts that cannot be avoided. Compensation may include on-site or off-site restoration of ecological functions to compensate for localized degradation.

"Non-Water-Dependent Use" means those uses which are not water-dependent.

"Non-Water-Oriented Use" means those uses which are not water-dependent, water-related, or water-enjoyment.

"Open space" means an area that is intended to provide light and air, view, use, or passage of persons or animals which is almost entirely unobstructed by buildings, paved areas, or other human-made structures, and is designed or preserved for environmental, habitat, scenic, or recreational purposes.

"Ordinary high water mark" means the mark on all lakes and streams that will be found by examining the beds and banks and ascertaining where the presence and action of waters are so common and usual, and so long continued in all ordinary years, as to mark upon the soil a character distinct from that of the abutting upland and vegetation, as that condition existed on June 1, 1971 for all lands under the jurisdiction of the Shoreline Management Act, or for other lands on the effective date of the relevant provisions of this program, or as it may naturally change thereafter, or as it may change thereafter in accordance with permits issued by the City or other authorized jurisdictions. In any area where the ordinary high water mark cannot be found, it shall be defined in accordance with WAC 173-22-030, generally the line of the mean higher high tide in areas adjoining salt water, and the line of mean high water in areas adjoining fresh water.

"Party of record" includes all persons, agencies or organizations who have submitted written comments in response to a notice of application; made oral comments in a formal public hearing conducted on the application; or notified local government of their desire to receive a copy of the final decision on a permit and who have provided an address for delivery of such notice by mail;

Pier" means docks or similar structures supported by fixed piles. This definition does not include over-water trails.

"Priority species" means fish and wildlife species requiring protective measures for their perpetuation due to their population status, their sensitivity to habitat alteration and/or their recreational, commercial, or tribal importance, as identified by the Washington Department of Fish and Wildlife.

"Permanent erosion control" means continuous on-site and off-site control measures that are needed to control conveyance or deposition of earth, and turbidity or pollutants after development, construction, or restoration.

"Permit" means that substantial development, special use, or variance permit issued by the city of Richland prior to substantial development in shoreline areas, subject to review by the State of Washington Department of Ecology and the State Attorney General.

"Pier" means docks and similar structures consisting of a fixed or floating platform extending from the shore over the water. This definition does not include over-water trails.

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Preservation (wetlands) means the removal of a threat to, or preventing the decline of, wetland conditions by an action in or near a wetland. This term includes the purchase of land or easements, repairing water control structures or fences, or structural protection. Preservation does not result in a gain of wetland acres [but may result in a gain in functions over the long term].

"Priority habitat" means a habitat type with unique or significant value to one or more species. An area classified and mapped as priority habitat must have one or more of the following attributes:

- Comparatively high fish or wildlife density;
- Comparatively high fish or wildlife species diversity;
- Fish spawning habitat;
- Important wildlife habitat;
- Important fish or wildlife seasonal range;
- Important fish or wildlife movement corridor;
- Rearing and foraging habitat;
- Important marine mammal haul-out;
- Refugia habitat;
- Limited availability;
- High vulnerability to habitat alteration;
- Unique or dependent species; or
- Shellfish bed.

A priority habitat may be described by a unique vegetation type or by a dominant plant species that is of primary importance to fish and wildlife (such as oak woodlands or eelgrass meadows). A priority habitat may also be described by a successional stage (such as, old growth and mature forests). Alternatively, a priority habitat may consist of a specific habitat element (such as a consolidated marine/estuarine shoreline, talus slopes, caves, snags) of key value to fish and wildlife. A priority habitat may contain priority and/or nonpriority fish and wildlife

"Priority species" means species requiring protective measures and/or management guidelines to ensure their persistence at genetically viable population levels. Priority species are those that meet any of the criteria listed below.

A. Criterion 1. State-listed or state proposed species. State-listed species are those native fish and wildlife species legally designated as endangered (WAC 232-12-014), threatened (WAC 232-12-011), or sensitive (WAC 232-12-011). State proposed species are those fish and wildlife species that will be reviewed by the department of fish and wildlife (POL-M-6001) for possible listing as endangered, threatened, or sensitive according to the process and criteria defined in WAC 232-12-297.

B. Criterion 2. Vulnerable aggregations. Vulnerable aggregations include those species or groups of animals susceptible to significant population declines, within a specific area or statewide, by virtue of their inclination to congregate. Examples include heron colonies, seabird concentrations, and marine mammal congregations.

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C. Criterion 3. Species of recreational, commercial, and/or tribal importance. Native and nonnative fish, shellfish, and wildlife species of recreational or commercial importance and recognized species used for tribal ceremonial and subsistence purposes that are vulnerable to habitat loss or degradation.

D. Criterion 4. Species listed under the federal Endangered Species Act as either proposed, threatened, or endangered.

"Public access" means physical and/or visual approach to and along the shoreline available to the general public.

"Public interest" means the interest shared by the citizens of the state or community at large in the affairs of government, or some interest by which their rights or liabilities are affected including, but not limited to, an effect on public property or on health, safety, or general welfare resulting from a use or development.

"Qualified consultant," for purposes of these regulations, shall mean a professionally trained and/or certified wildlife biologist or ecologist or other professional with expertise in the scientific disciplines necessary to identify, evaluate and manage habitat.

"Qualified professional" for the purpose of these regulations, shall mean a person with experience and training in the pertinent scientific discipline, and who is a qualified scientific expert with expertise appropriate for the relevant critical area subject in accordance with WAC 365-195-905(4). A qualified professional must have obtained a B.S. or B.A. or equivalent degree in biology, ecology, engineering, environmental studies, fisheries, geomorphology, or related field, and two years of related work experience.

A. A qualified professional for habitats or wetlands must have a degree in biology, ecology or related field and professional experience related to the subject species. A Qualified wetland specialist" is further defined below.

B. A qualified professional for a geological hazard must be a professional engineer or geologist, licensed in the state of Washington.

C. A qualified professional for critical aquifer recharge areas means a hydrogeologist, geologist, engineer, or other scientist with experience in preparing hydrogeologic assessments.

"Qualified wetland specialist" means a person or firm with experience and training in wetland issues, and with experience in performing delineations, analyzing wetland impacts, and recommending wetland mitigation and restoration. Qualifications include:

A. A Bachelor of Science or Bachelor of Arts or equivalent degree in biology, botany, ecology, environmental studies, fisheries, soil science, wildlife or related field, and two years of related work experience, including a minimum of one year of experience delineating wetlands using the Unified Federal Manual preparing wetland reports. Additional education may substitute for one year of related work experience; or

B. Four years of related work experience and training, with a minimum of two years' experience delineating wetlands with the Unified Federal Manual and preparing wetland reports.

"Recreation areas or facilities" means any privately or publicly owned passive or active facility that provides for activities undertaken for pleasure or relaxation and for the refreshment of the mind and body that takes place in the outdoors or in a facility dedicated to the use including walking, fishing, photography, viewing, and bird-watching and may include parks, playgrounds, sports fields, paths and trails, beaches, or other recreation areas or facilities

Re-establishment (wetland): The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural or historic functions to a former wetland. Re-establishment results in rebuilding a former wetland and results in a gain in wetland acres [and functions]. [Activities could include removing fill, plugging ditches, or breaking drain tiles.]

"Regulated activity" means activities occurring in or near and/or potentially affecting a wetland or wetland buffer that are subject to the provisions of this section. Regulated activities generally include, but are not limited to, any filling, dredging, dumping or stockpiling, draining, excavation, flooding, construction or reconstruction, driving pilings, obstructing, shading, clearing or harvesting.

Rehabilitation (wetland): The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural or historic functions [and processes] of a degraded wetland. Rehabilitation results in a gain in wetland function but does not result in a gain in wetland acres. [Activities could involve breaching a dike to reconnect wetlands to a floodplain or returning tidal influence to a wetland.]

"Restore", "Restoration" or "ecological restoration" means the reestablishment or upgrading of impaired natural or enhanced ecological shoreline processes or functions. This may be accomplished through measures including but not limited to re-vegetation, removal of intrusive shoreline structures and removal or treatment of toxic materials. Restoration does not imply a requirement for returning the shoreline area to pre-Columbia Basin Project, aboriginal or pre-European settlement conditions.

"Restoration" means the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural or historic functions to a former condition s, including re-establishment and rehabilitation.

"Sanitary landfill" is a method of disposing of solid waste on land without creating nuisances or hazards to public health or safety by utilizing the principles of engineering to confine the solid waste to the smallest practical volume, and to cover it with a layer of earth at the conclusion of each day's operation or at such more frequent intervals as may be necessary.

"Secondary habitat" or "secondary wildlife habitat" means areas with one or more of the following attributes: comparatively high wildlife density; high wildlife species richness; significant wildlife breeding habitat; significant wildlife seasonal ranges; significant movement corridors; limited availability; and/or high vulnerability. Secondary habitat offers less diversity of animal and plant species than critical habitat, but is important for performing the essential functions of habitat.

"Seismic Hazard Areas" are areas subject to severe risk of damage as a result of earthquake induced ground shaking, slope failure, settlement, soil liquefaction, or surface faulting. One indicator of potential for future earthquake damage is a record of earthquake damage in the past. Ground shaking is the primary cause of earthquake damage in Washington. The strength of ground shaking is primarily affected by: (1) magnitude of an earthquake; (2) distance from the source of an earthquake; (3) type of thickness of geologic materials at the surface; and (4) type of subsurface geologic structure.

"Shall" means a mandate; the action must be done.

"Shorelands or shoreland areas" means those lands under the jurisdiction of the Shoreline Management Act extending landward for two hundred (200) feet in all directions as measured on a horizontal plane from the ordinary high water mark; floodways and contiguous floodplain areas landward two hundred (200) feet from such floodways; and all wetlands and river deltas associated with the streams, lakes, and tidal waters that are subject to the provisions of the Shoreline Management Act (RCW 90.58.030); the same to be designated as to location by the Washington State Department of Ecology.

"Shoreline areas" mean all shorelines of the state and shorelands.

"Shoreline program" shall refer to the Richland shoreline master program.

"Shorelines of Richland" are the total of all shorelines and shorelines of statewide significance within the corporate limits of the city of Richland.

"Shoreline stabilization" means structural and non-structural actions taken to address erosion impacts to property and dwellings, businesses, or structures caused by natural processes, such as current, flood, tides, wind, or wave action. These actions include structural and nonstructural methods.

"Site" means any parcel or combination of contiguous parcels where a proposed project is located.

"Slope" means an inclined earth surface, the inclination of which is expressed as the ratio of horizontal distance to vertical distance.

"Solid waste" is defined as those presently unwanted residues of used natural or manmade resources and of human activity, including garbage, rubbish, ashes, industrial wastes, swill, demolition and construction wastes, abandoned vehicles or parts thereof, and discarded commodities, which are handled or managed in solid form.

"Should" means, in areas that are subject to the provisions of the Shoreline Management Act (RCW 90.58.030), that a particular action is required unless there is a demonstrated compelling reason, based on the policy of the Shoreline Management Act and this program, against taking the action. The Director shall make the determination about whether or not an applicant has demonstrated that there is a compelling reason against taking an action and may consult with the Department of Ecology and other agencies with jurisdiction over a proposal in making such a determination.

"Structural diversity" means the relative degree of diversity or complexity of vegetation in a habitat area as indicated by the stratification or layering of different plant communities (e.g., ground cover, shrub layer, and tree canopy); the variety of plant species; and the spacing or pattern of vegetation.

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"Structure" means a permanent or temporary edifice or building, or any piece of work artificially built or composed of parts joined together in some definite manner, whether installed on, above, or below the surface of the ground or water, except for vessels;

“Substrate” means the soil, sediment, decomposing organic matter or combination of those located on the bottom surface of the wetland.

“Temporary erosion control” means on-site and off-site control measures that are needed to control conveyance or deposition of earth, turbidity, or pollutants during development, construction, or restoration.

“Water-dependent use” means a use or portion of a use which cannot exist in a location that is not adjacent to the water and which is dependent on the water by reason of the intrinsic nature of its operations.

“Water-enjoyment use” means a recreational use or other use that facilitates public access to the shoreline as a primary characteristic of the use, or a use that provides for enjoyment or recreational use of the shoreline for a substantial number of people as a general characteristic of the use and which through location, design, and operation ensures the public's ability to enjoy the visual and physical qualities of the shoreline. In order to qualify as a water-enjoyment use, the use must be open to the general public and the shoreline-oriented space within the project must be devoted to the specific aspects of the use that fosters shoreline enjoyment.

“Water-oriented use” means a use that is water-dependent, water-related, or water-enjoyment, or a combination of such uses.

“Water-related use” means a use or portion of a use which is not intrinsically dependent on a waterfront location, but its economic viability is dependent upon a waterfront location because:

- The use has a functional requirement for a waterfront location such as the arrival or shipment of materials by water or the need for large quantities of water; or
- The use provides a necessary service supportive of the water-dependent uses and the proximity of the use to its customers makes its services less expensive and/or more convenient.

“Wetlands” or "wetland areas” means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support a prevalence of vegetation adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from non-wetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands may include those artificial wetlands intentionally created from non-wetland areas to mitigate the conversion of wetlands. For identifying and delineating a regulated wetland, the methodology shall be done in accordance with the approved federal wetland delineation manual and applicable regional supplements as provided in RCW 90.58.380 and WAC 173-22-035. Agency filings affecting this section “Associated jurisdictional wetlands” are those wetlands that

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are in proximity to and either influence or are influenced by shoreline areas subject to the Shoreline Management Act.

"Wetland buffer area" means a naturally vegetated and undisturbed, enhanced or revegetated zone surrounding a natural, restored, or newly created wetland that is an integral part of a wetland ecosystem, and protects a wetland from adverse impacts to the integrity and value of the wetland. Wetland buffers serve to moderate runoff volume and flow rates; reduce sediment, chemical nutrient and toxic pollutants; provide shading to maintain desirable water temperatures; provide habitat for wildlife; and protect wetland resources from harmful intrusion.

"Wetland Class" The U.S. Fish and Wildlife Service wetland classification scheme uses a hierarchy of systems, subsystems, classes and subclasses to describe wetland types (refer to USFWS, December 1979, Classification of Wetlands and Deepwater Habitats of the United States for a complete explanation of the wetland classification scheme). Eleven class names are used to describe wetland and deepwater habitat types. These include: forested wetland, scrub-shrub wetland, emergent wetland, moss-lichen wetland, unconsolidated shore, aquatic bed, unconsolidated bottom, rock bottom, rocky shore, stream bed, and reef.

"Wetland delineation" means the delineation requires the actual flagging or staking in the field of the edges of the wetland by a qualified consultant or their representative.

"Wetland determination" means a report prepared by a qualified consultant that identifies, characterizes, and analyzes potential impacts to wetlands consistent with applicable provisions of these regulations. A determination does not include a formal delineation.

"Wildlife habitat" means areas that provide food, protective cover, nesting, breeding, or movement for fish and wildlife and with which individual species have a primary association.

"Wildlife report" means a report, prepared by a qualified consultant that evaluates plant communities and wildlife functions and values on a site, consistent with the format and requirements established by this chapter

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Section III Amendment of City of Richland Code

Changes from the existing code text are indicated in red underlined format for insertions and in ~~strikethrough~~ format for deletions.

1. The following revision is made to RMC 19.20.010(A):

For the purpose of project permit processing, all development permit applications shall be classified as one of the following: Type I, Type II, or Type III. Legislative decisions are Type IV actions, and are addressed in RMC 19.20.050. Exclusions from the requirements of project permit application processing are contained in RMC 19.20.070.

A. Type I permits include the following types of permit applications:

1. Minor revisions to planned unit developments;
2. Final approvals of planned unit developments;
3. Short plats;
4. Small binding site plans;
5. Minor revisions to preliminary plats;
6. Minor revisions to site plans;
7. Minor revisions to special use permits;
8. Minor revisions to shoreline substantial development permits;
9. Minor new substantial development permits that meet any of the following criteria;
   a. Single family residences not constructed by an owner, lessee, or contract purchaser for their own use;
   b. Single family non-exempt docks; and
   c. New developments on a site of one acre or less and with a cost of less than $500,000.
10. ~~9~~ Accessory dwelling units.

B. Type II permits include the following types of permit applications:

1. Shoreline substantial development permits not classified as Type I permits or revisions thereof;
2. Large binding site plans;
3. Site plan approvals or major revisions thereof;
4. Building height exceptions;
5. Design review – acceptance of alternative design standards;

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6. Schools on small sites;
7. Extension of preliminary plat approvals;
8. Joint use parking reductions;
9. Special sign permits;
10. Planned unit development – final approvals;*
11. Special use permits or major revisions thereof.

2. The following addition is made to Chapter 23.66 Non-Conforming Uses

23.66.010 Nonconforming uses of land and buildings – Continuance.

Any nonconforming use of land or buildings lawfully existing at the effective date of the ordinance codified in this title may be continued subject to the provisions of RMC 23.66.020 through 23.66.040. [Ord. 28-05 § 1.02].

23.66.020 Nonconforming uses of land and buildings – Yard, area, and building design requirements.

Any building or structure conforming as to use but nonconforming as to height, lot area, lot coverage, or yards at the effective date of the ordinance codified in this title may be altered, repaired or extended; provided, that such alteration, repair, or extension shall not increase the existing degree of nonconformance. [Ord. 28-05 § 1.02; Ord. 04-09].

Provided that within jurisdiction of the Shoreline Management Act RCW 98.50 the Administrator shall find that alteration, repair, or extension is consistent with the master program, including requirements for no net loss of shoreline ecological functions.

23.66.030 Nonconforming uses and buildings – Termination.

Any nonconforming use not involving a structure, or one involving a fence or similar landscape enclosure or one involving a structure having an assessed value of less than $100.00 on the effective date of the ordinance codified in this title may be continued for no longer than one year after said date and any nonconforming use involving a structure having an assessed value of more than $100.00 but less than $300.00 on the effective date of the ordinance codified in this title may be continued for no longer than two years after said date. [Ord. 28-05 § 1.02].

23.66.040 Nonconforming uses and buildings – Limitations.

Any nonconforming building or part thereof may be maintained with ordinary repair; provided, however, no such building or part shall be extended, expanded, or structurally altered, except as otherwise required by law, nor shall a nonconforming use be extended, enlarged or expanded.

Any change of a nonconforming use in a conforming building shall be to a conforming use.

A nonconforming building or part thereof which has been unoccupied continuously for a period of one year or more shall not be reoccupied except by a conforming use.

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A nonconforming use of a fractional part of a building shall not be extended throughout the building. [Ord. 28-05 § 1.02].

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DRAFT CUMULATIVE IMPACTS ANALYSIS REPORT

CITY OF RICHLAND SMP UPDATE

Prepared for

City of Richland

Prepared by

Anchor QEA, LLC
8033 West Grandridge Boulevard, Suite A
Kennewick, Washington 99336

Prepared with assistance from

Parametrix, Inc.

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LIST OF ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius
City	City of Richland
Ecology	Washington State Department of Ecology
ESA	Endangered Species Act
HPA	hydraulic project approval
IAC	Inventory, Analysis and Characterization
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
OHWM	ordinary high water mark
RCW	Revised Code of Washington
RR	regulatory reaches
SMA	Shoreline Management Act
SMP	Shoreline Master Program
UGA	urban growth area
USFWS	U.S. Fish and Wildlife Service
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WQC	Water Quality Certification

1 INTRODUCTION

1.1 Report Purpose

The City of Richland (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]).

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 this 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 2014), the Cumulative Impacts Analysis Report is the final analysis step for the City's comprehensive SMP update. This report includes a brief introduction to the City; a more detailed discussion of the setting is available through the Inventory, Analysis and Characterization (IAC) Report (Anchor QEA 2013). Also included is a discussion of anticipated development within 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 EXISTING CONDITIONS

The City is located at the confluence of the Columbia and Yakima Rivers within Benton County in the southeastern portion of Washington State. The segments of the Yakima and Columbia 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 within Washington State. High temperatures in January can range from 35 to 45 degrees Fahrenheit (1.6 to 7.2 degrees Celsius [°C]), with low temperatures between 20 to 30 degrees (-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 2012).

The Yakima River is a major surface water resource for the planning area; the river's hydrology in the City is affected by the Yakima Project and other irrigation water withdrawals. The Yakima Project includes a reservoir system that stores natural flow in the upper Yakima River and Naches River basins for release during high demand periods. The storage-and-release cycle causes the Yakima River in the planning area to be regulated with flows higher than natural in the late summer and fall and lower than natural in the spring and early summer.

The Columbia River is the other major surface water resource in the City. The portion of the Columbia River within the City is part of the upstream portion of Lake Wallula. Lake Wallula was created from the impoundment of the Columbia River by McNary Dam. Because the planning area is within the Lake Wallula portion of the Columbia River, water levels are generally stable. Columbia River floodplain levels are also confined due to river regulation. The upper part of the City Urban Growth Area (UGA) is just below the Hanford Reach of the Columbia River, which is the last free-flowing stretch of the Columbia River.

The City is part of the Tri-Cities Metropolitan Area in southeast Washington State and includes 25,197 acres in the current incorporated limits and an additional 5,433 acres in the

UGA. The 5.8 square miles in the City and the associated UGA comprise about 5 percent of the 111 square miles designated UGA in the Benton County Comprehensive Plan.

Residential use comprises about 23 percent of the land area, industrial and business parks about 20 percent, commercial and retail about 5 percent, natural open space about 8 percent, and developed open space just more than 7 percent. The natural open space system includes most of the Yakima River and Columbia River shorelines, islands, greenways, and designated areas within residential developments.

3 REASONABLY FORESEEABLE FUTURE DEVELOPMENT AND POTENTIAL IMPACTS TO ECOLOGICAL FUNCTION

3.1 Foreseeable Future Development

The City has a population of more than 51,150 as of 2012. From 2010 to 2013, the projected population growth is more than 6 percent for the City (OFM, 2012). With the positive population trends, additional development within the City is anticipated throughout the next 20 years and is summarized in Table 1. Table 1 presents a number of development indicators and details for each shoreline reach.

- Land Capacity – Presents the amount of developable acres and corresponding number of residential units, which are based on existing land use designations.
- Anticipated Development – Includes the anticipated residential, commercial, or recreational development in the next 20 years.
- Environment Designations – Identifies environment designations for each reach that are tied to the anticipated development.

Table 1
City Shorelines

Richland - Reaches 1 and 2 Regulatory Reaches (RR) A and B, Figure 1	**(IAC Figure 1)**
Land Capacity: 0 Developable Acres	
Environment Designations	**Anticipated Development**
Conservancy	None
Richland - Reach 3 RR C through G, Figure 1	**(IAC Figures 2-6)**
Land Capacity: 20 to 35 Developable Acres (outside floodway)/5 Rural (residential) units and 10 single-family residential units	
Environment Designation	**Anticipated Development**
Conservancy [Southern tip of Subreach 3a, majority of 3b and 3c; RR E, F, and G]	Limited development at W.E .Johnson Park, including restrooms and parking for the equestrian and archery areas, trail extensions, and equestrian corrals and covered areas (City of Richland 2012a).
Residential [Small upper slope segments of Subreach 3c; RR G]	Constrained by existing development, topography, and land ownership. Limited potential at southern edge of Reach at top of slope between existing residential and multi-family.

Rural (Subreaches 3a and a portion of 3b; RR C & D)	Constrained by extensive floodway area and existing development. Limited additional rural residential/small-acreage farm or livestock development possible.
Richland - Reach 4 RR H through southern half of N, Figure 1	**(IAC Figures 7-8)**
Land Capacity: 0 Developable Acres	
Environment Designation	**Anticipated Development**
Natural [Southern portion of Subreach 4c; RR J]	None
Conservancy [Subreach 4a, 4b and northern portion of Subreach 4c; RR H, I and southern half of N]	None
Richland - Reach 5 Western portion of RR K, Figure 1	**(IAC Figure 6)**
Land Capacity: 0 Developable Acres	
Environment Designation	**Anticipated Development**
Natural	None
Conservancy	None
Richland - Reach 6 Eastern portion of RR K and RR L and M, Figure 1	**(IAC Figures 7-8)**
Land Capacity: 10 Developable Acres	
Environment Designation	**Anticipated Development**
Natural [Majority of Subreach 6a; RR K]	None
Conservancy [Subreach 6b, lower slope and Bateman island portions of 6c; RR K (bridge portion) and slope of RR L and Bateman Island portion of RR M]	None
Residential [Small portion of Subreach 6a; RR K]	None (located within right of way of canal)
Recreation (Eastern portion of Subreach 6c; and RR M)	Limited recreation development associated with Columbia Park West Master Plan including marina overflow parking lot, and small stage near a proposed water access and pocket beach (City of Richland 2010).
Richland - Reach 7 RR U, Figure 1	**(IAC Figure 9)**
Land Capacity: 0 Developable Acres	
Environment Designation	**Anticipated Development**
Natural	None
Richland - Reach 8 RR R through T, Figure 1	**(IAC Figure 10)**
Land Capacity: 3 to 5 Developable Acres	

Environment Designation	Anticipated Development
Industrial Conservancy [Subreach 8a; RR T]	Port of Benton related industrial development at and adjacent to existing development. Rest of area to remain as open space.
Natural [Portions of Subreaches 8b, 8c and entire 8f; Portions of RR S]	None
Conservancy [Small lower bank portions of Subreaches 8b and 8c; small portions of RR S and T]	None
Recreation [Portion of Subreach 8c and entire Subreach 8d; portion of RR S]	Limited recreation-related development associated with the WSU Tri Cities campus, this will include one boat launch (hand launch) (WSU 2008).
Residential [Small upper bank portions of Subreaches 8b and 8c, entire Subreach 8e; small portions of RR S and T]	Up to eight additional single-family residential units along trail and south of existing residential development (Subreach 8b). Additions and other improvements on existing residential development in Subreach 8e (and 9a for below), including some new docks and access to these docks. The McNary Shoreline Management Plan Environmental Assessment notes that 27 new docks will be allowed for the McNary pool (including, Richland, Pasco, Kennewick, and portions of Benton and Franklin County). Additionally the existing 49 docks within the region will also need to be upgraded in the future. Within the City, this reach will likely include the majority of new over-water structures; for this analysis we have assumed eight new docks (USACE 2011).
Richland - Reach 9 RR P and Q, Figure 1	**(IAC Figure 11)**
Land Capacity: 41 Developable Acres	
Environment Designation	**Anticipated Development**
Recreation [Subreaches 9b, 9c, lower bank of 9d, and 10a; RR P]	Limited recreation-related development, such as additional benches installed and other minor improvements made in previously disturbed areas.
Residential [Upper bank of Subreach 9d; RR P]	None (completely built out)
Natural [Subreaches 9a, 9e, and 9f; RR Q and island portions of P]	None
Richland - Reach 10 RR O and P, Figure 1	**(IAC Figure 12)**
Land Capacity: 2 Developable Acres	
Environment Designation	**Anticipated Development**
Conservancy [Small portion of Subreach 10b; small portion of RR O]	None
Recreation [Subreach 10a and northern third of Subreach 10c; RR P, and northern half of RR N]	Limited recreation-related development, including updates to tennis courts (outside of shoreline jurisdiction), lighting, parking, and improvements to Amon Park Drive, a portion of which falls within shoreline jurisdiction (City of Richland 2012).
Waterfront [Subreach 10b; RR O]	Limited commercial development. Development of the 2-acre

	vacant site south of the existing Courtyard by Marriott Hotel is likely to take place in accordance with previously approved plans for a mixed use development. The 5-acre Shilo Rivershore Hotel is one of the older developments along the shoreline and is most likely to be redeveloped in the future.

Notes:
IAC – Inventory, Analysis, and Characterization Report
RR – Regulatory Reaches
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 over-water 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, which are 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 slope and transfer energy downstream/down current of the hardened area. Wakes from recreation vessels can further exacerbate soil and sediment erosion issues.

Water Quality: Impervious surfaces affect nutrient cycling and run-off from these surfaces may include toxins or pathogens affecting 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. Over-water 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 SMP AND ESTABLISHED REGULATION

The City's SMP will work in conjunction with other city, state, and federal regulations and programs, which aim to protect ecological resources and protect the health and well-being of citizens. The following section summarizes the critical area, state and federal regulations, restoration plans, and 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 sensitive areas regulations for wetlands, geologically hazardous areas, and fish and wildlife habitat conservation areas. Existing regulations provide provisions for the protection and mitigation of environmentally sensitive areas within the City's shoreline jurisdiction. The Sensitive Areas Code also describes general mitigation requirements, including avoiding, minimizing, rectifying, or compensating for adverse impacts to these areas or their buffers.

4.2 Beneficial Effects of Established Regulation and Recreational Land Management Agreement

Certain state and federal agencies have jurisdiction over areas within the City's shoreline jurisdiction. Development thresholds that commonly lead to agency consultation include proposals that may: impact federally listed fish or wildlife, wetlands, streams; affect the floodplain or floodway; or include clearing and grading of land. Additionally, the City leases and manages land owned by the U.S. Army Corps of Engineers (USACE) and complies with provisions to protect and manage resources on these lands.

The updated SMP regulations are meant to be consistent with and work in concert with these 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 state waters is subject to WDFW regulation and could require HPA approval. This could include any projects within

the shoreline jurisdiction that require construction below 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 a NPDES permit. In addition, activities that result in stormwater discharge from industrial facilities, construction sites larger than five acres, or municipal stormwater systems that serve over 100,000 people require a NPDES permit.
- **Clean Water Act Section 404 Permit (Section 404) –** The federal Clean Water Act provides the regulatory structure that authorizes the discharge of pollutants from point sources to waters of the United States. Section 404 of the Clean Water Act regulates the discharge of dredged or fill material into the water of the United States, including wetlands. The U.S. Army Corps of Engineers administers and enforces the 404 permit, including individual permit decisions and jurisdictional determinations.
- **Clean Water Act Section 401 Water Quality Certification (Section 401) –** Section 401 of the Clean Water Act 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 Oceanic and Atmospheric Administration (NOAA) Fisheries 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.

Additionally, the City is in the process of developing and implementing a vegetation management plan for City parks and recreation areas, including developed and undeveloped

lands (in coordination with USACE) that protects ecological functions and will result in no net loss of these functions through operations, maintenance and restoration actions in undeveloped areas. This plan includes integrated vegetation management for control of invasive weeds and replacing existing invasive species with native or compatible species.

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, the Benton Conservation District, and local cities and towns. A list of the key groups and is included below in alphabetical order. This is intended to be a list of key parties and may not name all groups that have contributed to shoreline restoration or protection in the past and may in the future, as there may be others that arise or that Anchor QEA is unaware of at this time.

- Benton Conservation District
- City of Richland Parks and Recreation Department
- Ducks Unlimited
- Ecology
- Mid-Columbia Fisheries Enhancement Group
- NOAA Fisheries
- Pheasants Forever
- Tapteal Greenway
- The Nature Conservancy
- U.S. Army Corps of Engineers
- U.S. Bureau of Reclamation
- U.S. Department of Agriculture
- USFWS
- WDFW
- Washington State Conservation Commission
- Washington State Department of Natural Resources
- Washington State Recreation and Conservation Office (RCO)

- Washington Trout
- Yakama Nation

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 2 lists these locations and opportunities, and includes 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 re-ordered in this table from the list of projects in the City's SMP Restoration Plan (Anchor QEA 2014) to match chronological order of reaches, but the project number has remained consistent with the Restoration Plan.

Table 2

Site-specific Restoration and Protection Opportunities in Richland

	Site	Restoration/Protection Opportunities	Priority[1]	Source	Key Impairments[2]	Key Benefits to Ecological Functions[2]
14	Gravel mining area south of I-182 and west of SR240 along Carrier Road - Reach 4	Enhance wetland habitat and riparian buffers	Moderate	SMP public visioning workshop 2/13/2013; also SIAC	Reduced water storage and reduced filtration of sediment, nutrient-, toxin-, or pathogen-laden water	Increased subsurface infiltration and flow, protect surface water quality
					Habitat loss	Increased riparian vegetation recruitment and habitat for terrestrial and aquatic species - foraging/breeding/nesting/migration/rearing
16	South end of Riverside Drive along irrigation canal - Reach 5	Enhance riparian and upland habitat along shoreline slope near canal	Moderate	SIAC	Habitat loss	Increased native shrub-steppe habitat for terrestrial species - foraging/breeding/nesting/migration
						Riparian vegetation recruitment
1	Bateman Island - Reach 6	Coordinate recreation use management to concentrate riparian, shoreline, and shallow aquatic impacts	Moderate	SMP public visioning workshop 1/23/2013	Habitat loss - riparian and wetland	Riparian vegetation recruitment for native terrestrial species - foraging/breeding/nesting habitat
						Protections for temperature/dissolved oxygen conditions and protection against toxin/pathogen addition
						Reductions in soil erosion
		Remove invasives and replace with native vegetation[3]	Moderate	SIAC, SVMP	Habitat loss	Increased native shrub-steppe habitat for terrestrial species - foraging/breeding/nesting/migration
						Riparian vegetation recruitment
		Evaluate options for breaching causeway for protection of Bateman Island and reconnection of Yakima River flow	Very High	SIAC	Habitat loss and fragmentation	Habitat protection for terrestrial and aquatic species - foraging/breeding/nesting/migration/rearing
					Restricts water movement	Improved habitat connectivity and sediment delivery processes
17	Irrigation canal parallelling Columbia Park Trail - Reach 6	Enhance riparian and upland habitat along shoreline slope near canal	Moderate	SIAC	Habitat loss	Increased native shrub-steppe habitat for terrestrial species - foraging/breeding/nesting/migration
						Riparian vegetation recruitment
2	Columbia Point South Trail System - Reach 6	Coordinate recreation use management to concentrate riparian, shoreline, and shallow aquatic impacts	Moderate	SMP public visioning workshop 1/23/2013	Habitat loss (riparian and wetland)	Riparian vegetation recruitment for native terrestrial species - foraging/breeding/nesting habitat
						Protections for temperature/dissolved oxygen conditions and protection against toxin/pathogen addition
						Reductions in soil erosion
4	East city limits to west side of Columbia Park West - Reach 6	Set back road from current location; enhance riparian zone along shoreline by removing concrete rubble and retaining wall (replace with boulders), and removing Russian Olive and other invasive species, and replacing with native riparian vegetation[3]	High	CPWMP; SIAC; SVMP	Habitat loss	Increased habitat for terrestrial species - foraging/breeding/nesting/migration
					Sediment and organic material cycle disruption	Riparian vegetation recruitment
						Increased native shrub-steppe habitat for terrestrial species - foraging/breeding/nesting/migration
5	West side of Columbia Park West to Wye Boat Launch - Reach 6	Remove Russian Olive and other invasive species, and replace with native riparian vegetation[3]	High	SVMP	Habitat loss	Increased native shrub-steppe habitat for terrestrial species - foraging/breeding/nesting/migration
						Riparian vegetation recruitment
6	Wye Boat Launch to SR 240 (Wye Levee) - Reach 6	Bank stabilization using soft-engineering techniques that also increase habitat functions. Remove Russian Olive and other invasive species, and replace with native riparian vegetation[3]	High	SVMP	Habitat loss	Increased native riparian habitat for terrestrial and aquatic species - foraging/breeding/nesting/migration/rearing
						Riparian vegetation recruitment

	Site	Restoration/Protection Opportunities	Priority[1]	Source	Key Impairments[2]	Key Benefits to Ecological Functions[2]
7	Columbia Point South to I-182 Bridge - Reach 6	Remove Russian Olive and other invasive species, and replace with native vegetation[3]	High	SVMP	Habitat loss	Increased native riparian habitat for terrestrial and aquatic species - foraging/breeding/nesting/migration/rearing
						Riparian vegetation recruitment
15	Columbia River parks (all, particularly north of Howard Amon Park) - Reach 7-10	Enhance riparian zone along shoreline in areas not frequently used	Moderate	SMP public visioning workshop 2/13/2013	Habitat loss	Increased native shrub-steppe habitat for terrestrial species - foraging/breeding/nesting/migration
						Riparian vegetation recruitment
13	Snyder Street to Ferry Street - Reach 8 & 9	Remove Russian Olive and other invasive species, and replace with native riparian and upland vegetation[3]	High	SVMP	Habitat loss	Increased native riparian habitat for terrestrial and aquatic species - foraging/breeding/nesting/migration/rearing
						Riparian vegetation recruitment
11	North end of Haines Street levee to sand volleyball courts in Leslie Groves Park - Reach 9	Remove Russian Olive and other invasive species, and replace with native riparian and upland vegetation in clustered areas while providing view corridors and water access at bench locations[3]	Medium	SVMP	Habitat loss	Increased native riparian habitat for terrestrial and aquatic species - foraging/breeding/nesting/migration/rearing
						Riparian vegetation recruitment
12	Sand volleyball courts in Leslie Groves Park to Snyder Street - Reach 9	Remove Russian Olive and other invasive species, and replace with native riparian and upland vegetation[3]	High	SVMP	Habitat loss	Increased native riparian habitat for terrestrial and aquatic species - foraging/breeding/nesting/migration/rearing
						Riparian vegetation recruitment
8	I-182 Bridge to Bradley Landing - Reach 10	Remove Russian Olive and other invasive species, and replace with native riparian vegetation[3]	High	SVMP	Habitat loss	Increased native riparian habitat for terrestrial and aquatic species - foraging/breeding/nesting/migration/rearing
						Riparian vegetation recruitment
9	Bradley Boulevard parking lot to south end of Howard Amon Park - Reach 10	Bank stabilization using soft-engineering techniques that also increase habitat functions. Remove Russian Olive and other invasive species, and replace with native upland and riparian vegetation[3]	High	SVMP	Habitat loss	Increased native riparian habitat for terrestrial and aquatic species - foraging/breeding/nesting/migration/rearing
						Riparian vegetation recruitment
10	Howard Amon Park - Reach 10	Bank stabilization from boat launch to north end of park using soft-engineering techniques that also increase habitat functions. Remove aged, diseased, and safety hazard trees over time and replace with native trees[3]	High	SVMP	Habitat loss	Increased native riparian habitat for terrestrial and aquatic species - foraging/breeding/nesting/migration/rearing
						Riparian vegetation recruitment
3	Marina Vista Estates - Reach 10	Enhance riparian zone along shoreline	Moderate	SMP public visioning workshop 1/23/2013	Habitat loss	Increased native shrub-steppe habitat for terrestrial species - foraging/breeding/nesting/migration
						Riparian vegetation recruitment

Notes:
CPWMP = Columbia Park West Master Plan (RPR 2012).
SIAC = Shoreline Inventory, Analysis, and Characterization
SMP = Shoreline Master Program
SVMP = Draft City of Richland Shoreline Vegetation Maintenance Plan (Pinard 2013)
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 1 of this Restoration Plan.
3 Trees: Coyote and peachleaf willow, black cottonwood, choke cherry and Red Osier dogwood. Native plants: Big basin sage, elderberry, golden currant, mock orange, rabbitbrush, smooth sumac, wood's rose, basin wild rye, Indian ricegrass, thickspike wheatgrass, needle and thread grass, and yarrow.

4.4 Environment Designations

The City has designated shorelines 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 Program. The SMP classifies the City's shoreline into eight shoreline environment designations, shown here with their purpose:

- **Aquatic –** The purpose of the Aquatic shoreline designation is to protect, restore, and manage the unique characteristics and resources of the areas waterward of the OHWM.
- **Natural –** The purpose of the Natural shoreline designation is to protect 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.
- **Rural –** The purpose of Rural environments on the City's shorelines is to protect agricultural land and other historically rural areas from pressures of urban expansion, provide buffer areas between urban areas, protect ecological functions of the shoreline, and maintain open spaces and opportunities for recreational and other uses compatible with agricultural activities.
- **Recreation Conservancy –** The purpose of the Recreation Conservancy shoreline designation is to provide continued and enhanced low-intensity recreational opportunities with minimal modification of the shoreline character. The intensity of recreational uses should be designed to avoid alteration of existing vegetation as much as feasible and introduce low levels of human use.
- **Recreation –** The purpose of the Recreation environment is to provide higher intensity recreation uses including water-oriented and non-water-oriented uses. This environment includes existing and planned parks where native vegetation has been replaced by introduced species for aesthetic enjoyment, as well as for active areas such as informal lawn areas, picnic areas, and sports fields. Water-oriented uses are

preferred, but non-water-oriented uses are allowed as long as the location and configuration does not substantially interfere with enjoyment of the shoreline.

- **Residential –** The purpose of the Residential environment is to accommodate residential development and appurtenant structures at a variety of housing types and population densities consistent with the Comprehensive Plan and zoning. Protection is provided against hazards, objectionable influences, traffic, building congestion, and lack of light, air, and privacy. Certain compatible public service installations are permitted in residential use districts. An additional purpose is to provide appropriate public access and recreational uses, particularly associated with multi-family use.
- **Waterfront Use –** The Waterfront Use environment is a special commercial and residential classification providing for the establishment of such uses as marinas, boat docking facilities, resort motel and hotel facilities, offices, and other similar commercial, apartment, and multifamily uses, which are consistent with waterfront-oriented development. This environment encourages mixed special commercial and high-density residential uses to accommodate a variety of lifestyles and housing opportunities and enhances and maintains existing ecological functions of shoreline while providing for maximum public access and circulation.
- **Industrial Conservancy –** The Industrial Conservancy environment is applied to the Port of Benton barging facilities in North Richland to provide for transfer of waterborne cargos to land while maintaining the current generally undeveloped condition of the shoreline area outside of those areas needed for port facilities.

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 and appurtenant structures such as garages,

decks, driveways, fences, utilities, and grading that moves 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 only 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: control of 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 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 include:

- 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 2014) provides actions 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 function are also identified, allowing an assessment of the future performance of net effect. Table 3 summarizes these elements for each shoreline reach in Grant County and the Coalition.

Anticipated development is based on a qualitative land capacity analysis and discussions with City Planners through the environment Designation development. 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 3
Richland Cumulative Impacts Analysis

Environment Designations	Level of Existing Function	Types of Anticipated Development	Degree of Impact to Ecological Functions	Provisions to Address Risk	Future Performance/Net Effect
Conservancy	Partially Functioning	None	Hydrology: Low Sediment: Low Water Quality: Low Habitat Low		No development is anticipated.
Conservancy	Partially Functioning	None	Hydrology: Low Sediment: Low Water Quality: Low Habitat Low		No development is anticipated.
Rural	Partially Functioning and small part is Functioning	Very limited. Potential development related to agricultural uses.	Hydrology: Moderate Sediment: Low Water Quality: Moderate Habitat: Moderate	Agriculture provisions (26.30.020) A. This Program shall not restrict lawfully existing agriculture activities that have been discontinued for less than 5 years and retains existing views from the shoreline trail corridor. An agricultural use shall not be considered discontinued if it is allowed to lie fallow in which it is plowed and tilled but left unseeded; allowed to lie dormant as a result of adverse agricultural market conditions; or allowed to lie dormant because the land is enrolled in a local, state, or federal conservation program. B. All new agricultural activities and facilities on land not meeting the definition of agricultural land are governed by this Program and shall observe the Sensitive Area standards and buffer requirements of this Program and the criteria below. C. Agricultural activities shall follow recognized best management practices that improve or maintain water quality and quantity, reduce soil erosion, maintain, or improve soil conditions, and provide for wildlife habitat. D. New intensive agricultural activities and liquid manure storage shall be located outside of shoreline jurisdiction, unless the proposed use is within an established agricultural area and no alternative agricultural activity is feasible. New intensive agricultural activities shall assure no net loss of ecological functions. F. New manure spreading operations shall be carried out so that animal wastes do not enter water bodies, wetlands, or groundwater recharge areas.	Impacts to ecological function will be avoided, minimized, and mitigated per the SMP provisions for agricultural development, provided that SMP provisions are strictly applied.

Environment Designations	Level of Existing Function	Types of Anticipated Development	Degree of Impact to Ecological Functions	Provisions to Address Risk	Future Performance/Net Effect
Conservancy	Functioning	Limited recreation related development	Hydrology: Moderate Sediment: Low Water Quality: Moderate Habitat: Moderate	Recreation Provisions (26.30.080) Priority will be given to those recreational uses which provide appropriate public access to the shoreline. A. Only those public and private recreational uses that allow general public use shall be permitted on public shorelines of Richland. B. Access, circulation and parking for recreational developments shall comply with the following regulations: 1. Vehicular access points shall be limited to the minimum number necessary for the proposed recreational facility and shall be configured to minimize disturbance of sensitive natural resources. Non-motorized access points shall be provided where feasible. 2. Access to the water's edge from parking areas shall be limited to pedestrian movement, except that marinas and boat launching facilities may be provided with access drives or roads. 3. Parking areas shall be located on the inland side of all buildings, structures and recreational uses and shall be developed in accordance with applicable city of Richland standards. C. Development plans shall include provisions for the protection and preservation of ecological functions, natural resources and scenic views and vistas of the shoreline. D. Applications for recreational uses that require the use of fertilizers, pesticides, or other chemical treatments shall include plans demonstrating best management practices to be used to minimize the potential for contamination of surface water and groundwater resources. Non-chemical methods of vegetation management shall be preferred wherever feasible. E. New over-water structures for recreation use shall be allowed only when: 1. They accommodate water-dependent recreation uses or facilities, or 2. They allow opportunities for substantial numbers of people to enjoy the shorelines of the state, and 3. They are not located in or adjacent to areas of ecological sensitivity, especially aquatic and wildlife habitat areas, and 4. No net loss of ecological functions will be achieved. F. Private recreation uses and facilities that utilize public aquatic lands shall provide public access as provided in Section 26.20.050 or shall provide improved, compensating public access at other locations. G. Motorized vehicular use outside of designated roadways and driveways, including the use of all-terrain and off-road vehicles, in the shoreline area is prohibited, except for boat launching and maintenance activities and except where specific areas for such use are set aside and controlled by a public entity. H. In natural open space areas, the need for trails for ADA access should be balanced with the extent of alteration of the natural environment required to accommodate such facilities.	Impacts to ecological function will be avoided, minimized, and mitigated per the SMP provisions for recreation development. No net loss of ecological functions is anticipated as SMP provisions are strictly applied.
Residential	Partially Functioning	Single family (limited vacant areas located at top of slope)	Hydrology: Moderate Sediment: Low Water Quality: Moderate Habitat: Moderate	Residential development provisions (26.30.090) A. Single-family residential development is a priority use on the shoreline when developed in a manner consistent with control of pollution and prevention of damage to the natural environment. B. Residential development in the shoreline shall meet the criteria of no-net-loss of ecological functions. C. New residential development shall cluster dwelling units to provide as little alteration to the natural environment as feasible and shall utilize low impact development (LID) techniques to reduce physical and visual impacts on shorelines.	Impacts to ecological function will be avoided, minimized, and mitigated per the SMP provisions for recreation development. No net loss of ecological functions is anticipated as SMP provisions are strictly applied.

Environment Designations	Level of Existing Function	Types of Anticipated Development	Degree of Impact to Ecological Functions	Provisions to Address Risk	Future Performance/Net Effect
				D. Multi-family residential use is not a priority for location on the shoreline Multi-family development uses may be permitted only where it provides significant public benefit with respect to the objectives of the Act by:1. Restoration of ecological functions both in aquatic and upland environments that shall provide native vegetation buffers according to the standards provided for Sensitive Areas or in accordance with the Restoration Element of this document; and 2. Provision of public access is required in accordance with RMC 26.20.40. E. Over-water residences are prohibited. F. New residential development shall assure that the development will not require shoreline stabilization. G. New residential development shall meet all Sensitive Area provisions of this program. Filling of, or into, water bodies or their associated wetlands for the purpose of subdivision or multi-family construction shall not be permitted. New subdivisions, short plats, and large lots shall preserve the required buffer in a protective tract, public or private land trust dedication, or similarly preserved through an appropriate permanent protective mechanism. Each lot owner within the subdivision, short plat, or other land division shall have an undivided interest in the tract(s) or protective mechanism created. I. All new divisions of land shall record a prohibition on new private individual docks on the face of the plat. An area reserved for shared moorage may be designated if it meets all requirements of this program. J. All development shall be in compliance with all codes and ordinances of the city of Richland, including applicable subdivision, Sensitive Area and zoning regulations.	
Natural	Functioning	None	Hydrology: Low Sediment: Low Water Quality: Low Habitat Low		Moderate priority restoration planned. No development is anticipated. If these plans are implemented a net gain in ecological function is anticipated.
Conservancy	Partially Functioning	None	Hydrology: Moderate Sediment: Low Water Quality: Moderate Habitat: Moderate		Moderate priority restoration planned. No development is anticipated. A net gain in ecological function is anticipated as these plans are implemented.
Natural	Functioning	None	Hydrology: Low Sediment: Low Water Quality: Low Habitat Low		Moderate priority restoration is planned. No development is anticipated. A net gain in ecological function is anticipated as these plans are implemented.
Conservancy	Functioning	None	Hydrology: Low Sediment: Low Water Quality: Low Habitat Low		No development is anticipated.
Conservancy	Functioning	None	Hydrology: Low Sediment: Low Water Quality: Low Habitat Low		No development is anticipated. Very high, high and moderate priority restoration planned. A net gain in ecological function is anticipated as these plans are implemented.
Residential	Functioning	None	Hydrology: Moderate Sediment: Low Water Quality: Moderate Habitat: Moderate		No development is anticipated. High priority restoration planned. A net gain in ecological function is anticipated as these plans are implemented.

Environment Designations	Level of Existing Function	Types of Anticipated Development	Degree of Impact to Ecological Functions	Provisions to Address Risk	Future Performance/Net Effect
Natural	Functioning	None	Hydrology: Low Sediment: Low Water Quality: Low Habitat Low		No development is anticipated. High and moderate priority restoration planned. A net gain in ecological function is anticipated as these plans are implemented.
Recreation	Functioning	Limited recreation related development	Hydrology: Moderate Sediment: Low Water Quality: Moderate Habitat: Moderate	See Recreation provisions (26.30.080) above.	High priority restoration planned. Impacts to ecological function will be avoided, minimized, and mitigated per the SMP provisions for agricultural development. No net loss of ecological functions is anticipated as SMP provisions are strictly applied and restoration plans are implemented.
Natural	Functioning & Partially Functioning	None	Hydrology: Low Sediment: Low Water Quality: Low Habitat Low		Moderate priority restoration planned. No development is anticipated. A net gain in ecological function is anticipated as these plans are implemented.
Industrial Conservancy	Partially Functioning	Port of Benton related industrial development	Hydrology: Moderate Sediment: Low Water Quality: Moderate Habitat: Moderate	Industrial Development and Port Facilities provisions (26.30.050) A. Portions of the site not used for said water-dependent use shall preserve the generally undeveloped nature of adjacent shoreline areas. B. Industrial and port development shall be located, designed, constructed, and operated in a manner that minimizes impacts to shoreline resources and avoids unnecessary interference with shoreline use by adjacent property owners. C. Cooperative use of existing port facilities, including docks and piers, shall be encouraged to reduce additional disruption to the shoreline.	High priority protection planned. Impacts to ecological function will be avoided, minimized, and mitigated per the SMP provisions for industrial/port development. No net loss of ecological functions is anticipated as SMP provisions are strictly applied and restoration plans are implemented.
Residential	Partially Functioning	Up to 8 additional single family units with associated docks (assume 8 new docks)	Hydrology: Low Sediment: Low Water Quality: Low Habitat Low	See Residential provisions (26.30.090) above. Boats and Vessel Facilities provisions (26.08.090 - a selection) A. All boating uses, development and facilities shall demonstrate that they result in no net loss of ecological functions and may be required to provide on-site and off-site mitigation. F. All in- and over-water structures shall be constructed of materials that will not adversely affect water quality or aquatic plants and animals over the long term. J. A dock or pier serving a single family residence shall meet the following standards: a. To prevent damage to shallow-water habitat, piers and/or ramps shall extend at least 40 feet perpendicular from the ordinary high water mark (OHWM). b. Piers and ramps shall be no more than 4 feet in width. 2. The bottom of either the pier or landward edge of the ramp shall be elevated at least 2 feet above the plane of OHWM. a. Grating shall cover the entire surface area (100%) of the pier and/or ramp. a. Piling shall not exceed 8 inches in diameter. b. Pilings shall be spaced at least 18 feet apart on the same side of any component of the overwater structure. c. Each overwater structure shall utilize no more than 4 piles total for the entire project. A combination of two piles and four helical anchors may be used in place of four piles. f. No in-water fill material will be allowed, with the exception of pilings and float anchors. 6. Floats a. Float components shall not exceed the dimensions of 8- by 20-feet, or an aggregate total of 160 square feet, for all float components.	High and moderate priority protection planned. Impacts to ecological function will be avoided, minimized and mitigated per the SMP provisions for residential and boat and vessel facilities development. No net loss of ecological functions is anticipated as SMP provisions are strictly applied and restoration plans are implemented.

Environment Designations	Level of Existing Function	Types of Anticipated Development	Degree of Impact to Ecological Functions	Provisions to Address Risk	Future Performance/Net Effect
				c. Grating shall cover 100% of the surface area of the float(s). d. Functional grating will cover no less than 50% of the float. e. Floats shall not be located in shallow-water habitat where they could ground or impede the passage or rearing of any salmonid life stage. f. Nothing shall be placed on the overwater structure that will reduce natural light penetration through the structure. g. 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.	
Conservancy	Partially Functioning	None	Hydrology: Low Sediment: Low Water Quality: Low Habitat Low		High priority restoration planned. No development is anticipated. A net gain in ecological function is anticipated as these plans are implemented.
Natural	Functioning	None	Hydrology: Low Sediment: Low Water Quality: Low Habitat Low		High priority restoration planned. No development is anticipated. A net gain in ecological function is anticipated as these plans are implemented.
Recreation	Partially Functioning	Limited recreation related development	Hydrology: Moderate Sediment: Low Water Quality: Moderate Habitat: Moderate	See Recreation provisions (26.30.080) above. Boats and Vessel Facilities provisions (26.08090 - boat launches section) H. 3. New public boat launches for general public use, or expansion of public boat launches by adding launch lanes shall demonstrate that: a. Water depths are adequate to avoid the need for dredging and eliminate or minimize potential loss of shoreline ecological functions or other shoreline resources from offshore or foreshore channel dredging. c. Exterior lighting will not adversely impact aquatic species.	High priority restoration planned. Impacts to ecological function will be avoided, minimized, and mitigated per the SMP provisions for recreation and boats and vessel facilities development. No net loss of ecological functions is anticipated as SMP provisions are strictly applied and restoration plans are implemented.
Natural	Functioning	None	Hydrology: Low Sediment: Low Water Quality: Low Habitat Low		High and moderate priority restoration planned. No development is anticipated. A net gain in ecological function is anticipated as these plans are implemented.
Recreation	Partially Functioning & Impaired	Limited recreation related development	Hydrology: Moderate Sediment: Low Water Quality: Moderate Habitat: Moderate	See Recreation provisions (26.30.080) above.	High and moderate priority restoration planned. Impacts to ecological function will be avoided, minimized, and mitigated per the SMP provisions for recreation development. No net loss of ecological functions is anticipated as SMP provisions are strictly applied and restoration plans are implemented.
Residential	Impaired	None	Hydrology: Low Sediment: Low Water Quality: Low Habitat Low		High and moderate priority restoration planned. No development is anticipated. A net gain in ecological function is anticipated as these plans are implemented.
Conservancy	Functioning	None	Hydrology: Low Sediment: Low Water Quality: Low Habitat Low		High and moderate priority restoration planned. No development is anticipated. A net gain in ecological function is anticipated as these plans are implemented.
Recreation	Impaired	Limited recreation related development	Hydrology: Moderate Sediment: Low Water Quality: Moderate Habitat: Moderate	See Recreation provisions (26.30.080) above.	High and moderate priority restoration planned. Impacts to ecological function will be avoided, minimized, and mitigated per the SMP provisions for recreation development. No net loss of ecological functions is anticipated as SMP provisions are strictly

Environment Designations	Level of Existing Function	Types of Anticipated Development	Degree of Impact to Ecological Functions	Provisions to Address Risk	Future Performance/Net Effect
					applied and restoration plans are implemented.
Waterfront	Impaired	Limited commercial development anticipated	Hydrology: Moderate Sediment: Low Water Quality: Moderate Habitat: Moderate	Commercial Provisions (26.30.040) A. Commercial development in shoreline areas shall be designed, located, and constructed to achieve no net loss of ecological functions. B. Preference shall be given to water-dependent commercial uses over non-water-dependent commercial uses. Water-related uses shall be given priority over non-water related uses. C. Commercial development that is not water-dependent shall not be allowed over water except where it is located within the same building and is accessory to and necessary for a water-dependent use. D. Non-water-oriented commercial development shall be allowed only when: 1. The use is part of a mixed-use project that includes water-dependent uses and provides a significant public benefit with respect to provision of public access and/or ecological restoration; or 2. Navigability is severely limited at the proposed site, and the commercial use provides a significant public benefit with respect to provision of public access and/or ecological restoration. E. In areas of the shoreline designated for commercial use, non-water-oriented commercial uses may be allowed on sites physically separated from the shoreline by another property or public road right-of-way. Marina Provisions (26.30.060) A. Proposals for new marinas must provide sufficient evidence that existing public boat launches, dry storage and moorage is not adequate to meet regional demand for recreational boating and that development of new marinas would result in fewer environmental impacts than expansion of existing facilities. B. Mooring buoys with small light dock access are preferred over in-water mooring docks Applications for marinas with in-water moorage may be approved as a Special Use if it is demonstrated that: Public navigation will not be impeded, location will not result in displacement of wetlands or interrupt natural processes, erosion or deposition, no dredging or armoring is required, existing public access will not be affected, water quality impacts will not increase, impacts to habitat are minimized, setbacks from non-commercial property are applied, changes to hydraulic, fluvial, and channel migration processes are minimized, exterior light pollution is minimized, adequate provisions for restroom, sewage and solid waste disposal facilities are made, parking is adequate and access and parking will not produce traffic hazards. C. Covered moorage is prohibited. D. Marinas shall provide public access amenities over public aquatic lands equivalent to a minimum 10 percent of over-water coverage and shall provide public walkway access to a public street and may be required to provide public parking including handicapped access.	High and moderate priority restoration planned. Impacts to ecological function will be avoided, minimized, and mitigated per the SMP provisions for commercial development. Provided that SMP provisions are strictly applied and restoration plans are implemented no net loss of ecological functions is anticipated.

OHWM = ordinary high water mark
SMP = Shoreline Master Program

As described in the table above, 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, the shoreline modification and use provisions, and finally, the Restoration Plan (Anchor QEA 2014). It is expected the SMP will 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.

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RESTORATION PLAN
CITY OF RICHLAND SMP UPDATE

Prepared for

City of Richland

Prepared by

Anchor QEA, LLC
8033 West Grandridge Boulevard, Suite A
Kennewick, Washington 99336

Prepared with assistance from

Parametrix, Inc.

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LIST OF ACRONYMS AND ABBREVIATIONS

BLM	Bureau of Land Management
BOR	Bureau of Reclamation
CTUIR	Confederated Tribes of the Umatilla Indian Reservation
DNR	Washington State Department of Natural Resources
EPA	Environmental Protection Agency
NOAA	National Oceanographic and Atmospheric Administration
OHWM	Ordinary High Water Mark
RCW	Revised Code of Washington
SIAC	Shoreline Inventory, Analysis, and Characterization Report
SMA	Shoreline Management Act
SMP	Shoreline Master Program
TMDL	Total Maximum Daily Loads
TNC	The Nature Conservancy
USACE	U.S. Army Corps of Engineers
USBR	U.S. Bureau of Reclamation
USDA	U.S. Department of Agriculture
USDOE	U.S. Department of Energy
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WSCC	Washington State Conservation Commission
YRBWEP	Yakima River Basin Water Enhancement Program

1 INTRODUCTION

This Restoration Plan (Plan) has been prepared in support of the City of Richland's (City's) Shoreline Master Program (SMP). The SMP is being prepared to comply with the Washington State Shoreline Management Act (SMA or the Act) requirements (Revised Code of Washington [RCW] 90.58) and the state's SMP guidelines (Washington Administrative Code [WAC] 173-26, Part III-201 2[f]), which were adopted in 2003. The City of Richland SMP is composed of policies and regulations that regulate the use and development of the river, stream, and lake shorelines and this Plan. The area covered by this Plan includes the SMP jurisdiction within Richland.

The scope of this document, the definition of restoration, and the key elements in restoration planning in the SMP process are discussed next.

1.1 Purpose and Scope of Plan

The purpose of this Plan is to describe how and where shoreline ecological functions can be restored within City SMP jurisdiction. The SMP guidelines (WAC 173-26-201(2)(f)) articulate that the Plan is to include specific elements, which are identified below along with the section in which the element occurs in this Plan:

1) An identification of degraded areas, impaired ecological functions, and sites with potential for ecological restoration – Section 4
2) An establishment of overall goals and priorities for restoration of degraded areas and impaired ecological functions – Section 4
3) An identification of existing and ongoing projects and programs that are currently being implemented that are designed to contribute to local restoration goals (such as capital improvement programs and watershed planning efforts – Section 3
4) An identification of additional projects and programs needed to achieve local restoration goals, and implementation strategies including identifying prospective funding sources for those projects and programs – Sections 4 and 5
5) An identification of timelines and benchmarks for implementing restoration projects and programs and achieving local restoration goals – Section 5
6) Provisions for mechanisms or strategies to ensure that restoration projects and programs will be implemented according to plans and to appropriately review the

effectiveness of the projects and programs in meeting the overall restoration goals – Section 5

While the Plan incorporates elements of other shoreline restoration planning documents that involve the shorelines under the City's SMP jurisdiction, the scope of this Plan under the SMA guidance does not extend to that of a master document combining and aligning priorities of other shoreline restoration documents, plans, or efforts. It is expected that alignment or conflict between this Plan and the goals of other plans (such as Comprehensive Plans) that occurs during implementation will be addressed within the context of the applicable regulations.

It is important to clarify that restoration as it is discussed here is distinct from the concept of protection or no net loss. The WAC defines "restoration" or "ecological restoration" as follows:

> *"…the reestablishment or upgrading of impaired ecological shoreline processes or functions. This may be accomplished through measures including, but not limited to, revegetation, removal of intrusive shoreline structures and removal or treatment of toxic materials. Restoration does not imply a requirement for returning the shoreline area to aboriginal or pre-European settlement conditions."*

The state's SMP policies include a standard of no net loss of ecological functions that are necessary to sustain shoreline natural resources that must be adhered to by new SMPs. The Washington State Department of Ecology (Ecology) has clarified that no net loss means that "establishing uses or conducting development are identified and mitigated with a final result that is no worse than maintaining the current level of environmental resource productivity" and "no uses or development supersede the requirement for environmental protection" (Ecology 2004). Thus, mitigation activities are the method by which no net loss is compensated. The distinction between no net loss and SMP restoration is that restoration goes beyond no net loss by establishing an increase in the amount, size, and/or functions of an ecosystem or components of an ecosystem compared to a baseline condition (Thom et al. 2005). Therefore, mitigation activities, including re-development and new development that include mitigation activities, could not be considered as part of restoration under this Plan unless there was a 'beyond no net loss' component to the work.

1.2 Key Elements of Restoration Planning in Shoreline Master Program Process

The state's SMP guidelines state that the SMP must give preference to certain shoreline uses, in the order as follows: 1) reserve appropriate areas for protecting and restoring ecological functions to control pollution and prevent damage to the natural environment and public health; 2) reserve shoreline areas for water-dependent and associated water-related uses; 3) reserve shoreline areas for other water-related and water-enjoyment uses that are compatible with ecological protection and restoration objectives; 4) locate single-family residential uses where they are appropriate and can be developed without significant impact to ecological functions or displacement of water-dependent uses; and 5) limit non-water-oriented uses to those locations where the above described uses are inappropriate or where non-water-oriented uses demonstrably contribute to the objectives of the Shoreline Management Act (WAC 173-26-201(2)(d)).

The guidelines also state that SMPs are to "include goals, policies and actions for restoration of impaired shoreline ecological functions" (WAC 173-26-186). The impaired functions are to be identified based on a detailed inventory and characterization of the shoreline ecosystem, and a restoration plan is to be formulated based on that information (WAC 137-26-201). The results of the inventory assessment were presented in the *Shoreline Inventory, Analysis, and Characterization Report* (SIAC Report) for Richland (Anchor QEA 2013). This Plan uses the information from the SIAC Report to address the restoration plan requirements discussed in the SMP guidelines. This Plan is not a regulatory document or a set of regulatory requirements. However, the SMP points to this Plan as a guide outlining opportunities for improving shoreline ecological function.

2 BACKGROUND

The City of Richland is located at the confluence of the Yakima and Columbia rivers, and is part of the Tri-Cities Metropolitan Area of Richland, Pasco, and Kennewick. The City is within Benton County and contains 25,197 acres in the current incorporated limits and additional 5,433 acres in the Urban Growth Area (UGA) (Anchor QEA 2013).

2.1 Planning Area Characteristics

Much of the Columbia River shoreline and portions of the Yakima River shoreline are owned by the U.S. Army Corps of Engineers (USACE) as part of the McNary Dam project with large portions of the federal ownership leased to the City as park and open space. There are several parks and nature preserves on the Yakima River, as well as many parks and greenspaces on the Columbia River. The natural open space system includes most of the Yakima River and Columbia River shorelines, islands, greenways, and designated areas within residential developments. The City also contains a portion of the Tapteal Greenway, which runs along the Yakima River from Benton City to Columbia Point.

Land cover in Richland dominated by developed areas (42 percent) and shrub/scrub habitat (31 percent), with agriculture (18 percent) occupying a significant percentage. Other land cover types include open water (8 percent), wetlands (1 percent), and forested areas (0.06 percent). Residential use comprises about 23 percent of the land area, industrial and business park about 20 percent, commercial/retail about 5 percent, natural open space about 8 percent, and developed open space about 7.4 percent (Anchor QEA 2013).

2.1.1 Geology

The geology, soils, and topography of the Richland area are primarily dictated by the Missoula Floods, glacial outburst flooding that occurred approximately 18,000 to 20,000 years before present. The geologic makeup is the result of erosion of pre-Floods geologic units, deposition of sediments carried by the floodwaters, and the formation of the unique topographic features that influence present-day hydrology. Prior to the Floods, the geology of the County consisted primarily of Miocene-aged Columbia River Basalt (CRB) flows that were in some places (e.g., plateaus) capped with varying thicknesses of wind-blown fine

sands and silt known as loess (Grolier and Bingham 1978). The segments of the Yakima and Columbia rivers around Richland are located in a wide valley that is 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.

2.1.2 Climate

The City falls within the Central Basin region of Washington, which has the lowest precipitation rates within Washington State. Annual precipitation in the Richland area averages around 7.15 inches and precipitation is commonly associated with summer thunderstorms and winter rains and snowfall. Snowfall depths rarely exceed 2 to 3 inches and occur from November to March. High temperatures in January can range from 35 to 45 degrees Fahrenheit (1.6 to 7.2 degrees Celsius [°C]) with low temperatures between 20 to 30 degrees (-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 2012).

2.1.3 Water Resources

The planning area is located in the lower Yakima River basin (Water Resource Inventory Area 37). Major surface water resources are the Yakima River and Columbia River.

2.1.4 Yakima River

The Yakima River at Kiona has an average annual flow of 3,497 cubic feet per second (cfs) for its 78-year period of record (1934 to present; USGS 2012), draining a basin area of 5,615 square miles at this gage. Yakima River hydrology in the planning area is affected by the Yakima Project. River hydrology in the City is affected by the Yakima Project, which is a reservoir system that stores natural flow in the upper Yakima River and Naches River basins for release during high-demand periods. The storage and release cycle typically causes higher than natural flows in the late summer and fall and lower than natural flows in the spring and early summer. Additionally, the river receives return flow from water use in the upper Yakima River and Naches River basins. The Yakima Project reservoir system also captures floods in the upper basin.

The Integrated Water Resource Management Plan (Integrated Plan) is a currently proposed approach to improve water management in the Yakima River basin, aiming to improve fish and wildlife habitat, and increase operational flexibility to manage instream flows for ecological and human uses (USBR and Ecology 2011).

2.1.5 Columbia River

The Columbia River is the other major surface water resource within the City. The portion of the Columbia River within the City is part of the upstream portion of Lake Wallula. Lake Wallula was created from the impoundment of the Columbia River by McNary Dam. The active continuous USGS gage nearest to the planning area is gage #12514500 (Columbia River on Clover Island at Kennewick, Washington). The Columbia River at this gage drains 104,000 square miles. This gage is a water surface elevation gage and has records from Water Year 1988 to present. The water surface elevation at this gage ranges from 335 feet to 344 feet (NGVD 1929).

Because the planning area is within the Lake Wallula portion of the Columbia River, water levels are generally stable. Columbia River floodplain levels are also confined due to river regulation and levees in some areas.

3 EXISTING RESTORATION PLANNING, PROGRAMS, AND PARTNERS

This section describes the range of restoration planning, programs, and partners at work in the Richland area.

There is a sizable body of literature on recent habitat and environmental planning that pertain to shoreline ecosystems, flora, and fauna in the region. These documents collectively describe a number of plans, projects, and status of the science. The documents are:

- *Assessment of the Lower Yakima River in Benton County, Washington* (Benton Conservation District 2011)
- *Interim Comprehensive Basin Operating Plan for the Yakima Project* (USBR 2002)
- *Interior Columbia Basin Strategy* (ICBEMP 2003)
- *Yakima River Basin Study - Integrated Water Resource Management Plan* (USBR and Ecology 2011)
- *Yakima River Basin Integrated Water Resource Management Plan Final Fish and Wildlife Coordination Act Report* (USFWS 2012)
- *Yakima Subbasin Plan* (YSFWPB 2004)
- *Yakima Steelhead Recovery Plan* (NMFS 2009)
- *Yakima Bull Trout Action Plan* (YBFWRB et al. 2012)
- Link, S.O., W.H. Mast, and R.W. Hill, 2006. Shrub-steppe. Restoring the Pacific Northwest,
- D. Apostol and M. Sinclair, editors, pp. 216-240. Island Press, Washington D.C.
- USFWS (U.S. Fish and Wildlife Service), 2008. The Final Hanford Reach National Monument Comprehensive Conservation Plan and Environmental Impact Statement (USFWS 2008)
- USACE McNary Shoreline Management Plan (USACE 2011)
- Columbia Park West Master Plan (City of Richland 2010)
- Richland Parks and Recreation Commission Meeting #2-2012 minutes (City of Richland 2012a)
- City of Richland W.E. Johnson Master Plan (City of Richland 2012b)

Many groups are involved in shoreline restoration and protection in the region containing the City, including the federal and state government, the Benton Conservation District, and

the local cities and towns. A list of the key groups and their contributions is included in brief below in alphabetical order. This is intended to be a list of key parties and may not name all groups that have contributed to shoreline restoration or protection in the past and may in the future, as there may be others that arise, or that Anchor QEA is unaware of at this time.

3.1 Benton Conservation District

The Benton Conservation District (District) helps landowners to develop solutions to local resource (e.g., soil, air, water) concerns through providing technical and financial assistance. In 2011, the district completed an assessment of the lower Yakima River to investigate the aquatic habitat needs, riparian restoration, fish screening needs, and beneficial uses of the lower Yakima River basin (Benton Conservation District 2011).

3.2 Confederated Tribes of the Umatilla Indian Reservation

The Confederated Tribes of the Umatilla Indian Reservation (CTUIR) is a fish and wildlife co-manager of the mid-Columbia Basin. The CTUIR works for the protection and enhancement of treaty fish, wildlife, and habitats within the City of Richland and the region for present and future generations.

3.3 Washington State Recreation and Conservation Office

The Washington State Recreation and Conservation Office (RCO), formerly the Interagency Committee for Outdoor Recreation, administers the Salmon Recovery Funding Board for funding habitat protection and restoration projects, and associated activities to benefit salmon (also see Washington state, below).

3.4 National Oceanographic and Atmospheric Administration Fisheries

The National Oceanographic and Atmospheric Administration Fisheries (NOAA Fisheries) leads recovery efforts for populations of salmon and steelhead in Washington and other states, which often includes consideration of protection and restoration of shoreline habitat that supports various life stages of these fish. NOAA Fisheries also administers the

Watershed Program, which evaluates the effectiveness of habitat and watershed restoration strategies or techniques.

3.5 Nonprofit Groups

Washington Trout is a nonprofit conservation ecology organization who seeks to preserve, protect, and restore Washington's wild fish and their habitats. Ducks Unlimited actively restores wetland, riparian and other floodplain habitats throughout the lower Yakima River subbasin. The Mid-Columbia Fisheries Enhancement Group is involved in improving fish passage conditions at the mouth of the Yakima River, including at Bateman Island. Tapteal Greenway works to sustain the Tapteal corridor/trail along the Yakima River from Benton City (Kiona Bridge at river mile [RM] 29.9) to the river's mouth, including the corridor within the City of Richland. Pheasants Forever contributes to the restoration of grasslands to benefit upland game birds.

The Nature Conservancy (TNC) restores and protects land in Benton County for the benefit of shrub-steppe habitat and wildlife, also allowing educational, research, and permitted recreational uses on its properties. Many shrub-steppe habitats are within the shoreline jurisdiction of the SMP. The Columbia Plateau Ecoregional Assessment (TNC 1999) identified a group of sites that could maintain biota and community viability, and provided an assessment of risks and strategies to conserve biodiversity in the area.

3.6 U.S. Army Corps of Engineers

USACE administers federal shoreline lands in Richland. The City leases and manages much of the land owned by USACE and complies with provisions to protect and manage resources on these lands. In coordination with the USACE, the City is in the process of developing and implementing a vegetation management plan for City parks and recreation areas (including developed and undeveloped lands) that protects ecological functions and will result in no net loss of these functions through operations, maintenance, and restoration actions in these areas. This plan includes integrated vegetation management for control of invasive weeds and replacing existing invasive species with native or compatible species.

3.7 U.S. Bureau of Land Management

The U.S. Bureau of Land Management (BLM) administers federal lands in Benton County. In its land acquisitions, the bureau targets shrub-steppe and associated riparian zones, and BLM policy gives priority to habitat for sensitive species and riparian areas. The BLM implements the Interior Columbia Basin Strategy, aimed at managing eastside forests in a scientifically-sound and ecosystem-based manner. It also implements integrated weed management, including shoreline areas.

3.8 U.S. Bureau of Reclamation

The U.S. Bureau of Reclamation (USBR) manages the federal Yakima Project, operating a dam and reservoir system for irrigation water supply, instream flows, and flood. The Yakima Project provides irrigation water for much irrigated land that extends along the Yakima River. The Yakima River Basin Water Enhancement Program (YRBWEP), administered by the USBR, demonstrates water conservation and fisheries enhancement by working with stakeholders in the basin. Ecology, the Yakama Nation, Bonneville Power Administration, and Natural Resource Conservation Service are all partners in the program, and local irrigation districts have been regular participants in the YRBWEP's activities.

3.9 U.S. Department of Agriculture

The U.S. Department of Agriculture (USDA) administers several programs through its Natural Resource Conservation Service (NRCS) that protect and restore shorelines, including the Wetlands Protection Program, the Resource Conservation and Development Program, the Wildlife Habitat Incentives Program, and the Conservation Reserve Program, among several others.

3.10 U.S. Fish and Wildlife Service

The U.S. Fish and Wildlife Service (USFWS) administers a number of programs that restore and protect other shoreline and aquatic habitats. The Partners for Fish and Wildlife Program helps private landowners restore wetlands and other habitats on their properties through voluntary cooperative agreements. The Water Management and Evaluation Program coordinates and manages issues that affect instream flows and shorelines.

3.11 Washington State

The state of Washington's Governor's Office coordinates restoration efforts with state agencies under the legislation of the Salmon Recovery Planning Act and the Salmon Recovery Funding Act. The lead entity in the Yakima Basin is the Yakima River Basin Fish and Wildlife Recovery Board. The board establishes funding for local habitat restoration projects. In addition, Washington State administers the RCO, as discussed in Section 3.2.

3.12 Washington State Conservation Commission

The Washington State Conservation Commission (WSCC) provides incentives to restore and improve salmon and steelhead habitat on private land under its Conservation Reserve Enhancement Program.

3.13 Washington State Department of Ecology

Ecology works with local jurisdictions, agricultural interests and others to develop clean-up plans, or Total Maximum Daily Loads (TMDLs) for waterbodies, which contain pollutants that exceed state water quality criteria. Currently, the Lower Yakima River has EPA-approved TMDLs for the pesticide DDT, as well as for suspended sediment. Ecology provides water quality monitoring grants and administers the Watershed Planning Act, which supplies grants to local groups to produce watershed plans.

3.14 Washington State Department of Fish and Wildlife

WDFW has close involvement in both the technical and policy aspects of fisheries research and habitat restoration in the Lower Yakima River.

3.15 Washington State Department of Natural Resources

The Washington State Department of Natural Resources (DNR) restores freshwater and marine habitat under its Aquatic Lands Enhancement Account Grant Program.

3.16 Yakama Nation

The Yakama Nation, also known as the Confederated Tribes and Bands of the Yakama Indian Nation, is a fish and wildlife co-manager of the Yakima Subbasin. The Yakama Nation works for the protection and enhancement of treaty fish, wildlife, and habitats for present and future generations.

4 RESTORATION CONTEXT, GOALS, AND PRIORITIES

Shoreline restoration is a response to habitat impairment that has occurred as a result of alterations to the hydrology and physical structure of the shore. To plan restoration, there must be an understanding of the major existing impairments, an overarching set of goals to guide the work, a prioritization context to organize the efforts, and a list of the available opportunities.

4.1 Shoreline Impairments

The ecosystem-wide processes and structure of City shorelines were described in detail in the SIAC Report for Richland (Section 5; Anchor QEA 2013). In addition, the alterations to these processes were discussed in terms of how the processes are interrupted or curtailed within the County, and how physical and biological functions of habitat are affected.

Table 1 provides a summary of the major City of Richland shoreline processes, alterations, and impairments. As shown in Table 1, alterations have occurred and impact shoreline processes involving hydrology, sediment, water quality, and habitat. These alterations include Columbia and Yakima Basin water storage and conveyance, impervious surfaces, vegetation alterations, water quality impacts, structural effects on habitat, shoreline hardening/stabilization, channel realignment, and other alterations such as lighting, noise, recreation, and species competition.

Table 1

Ecological Processes and Structures Affected by Major Alterations

			Ecological Processes & Structure																	
			Hydrology					Sediment		Water Quality			Habitat							
		Physical & Biological Functions	Storage	Subsurface Infiltration and flow	Surface flows	Hyporheic Exchange	Groundwater Recharge	Soil Erosion	Deposition/Storage	Nutrient Sources	Temperature/Dissolved Oxygen	Toxins/Pathogen sources	Riparian Vegetation Recruitment	Native grasslands and shrub steppe	Terrestrial Species - Foraging	Terrestrial Species - Breeding/Nestin	Terrestrial Species - Migration	Aquatic Species - Spawning	Aquatic Species - Rearing	Aquatic Species - Migration
Major Alterations	**Impairments**																			
Yakima and Columbia Basin Project(s) Storage	Restricts water movement		x		x						x	x						x	x	x
	Restricts sediment movement							x	x	x										
	New lakes and wetlands						x							x	x	x	x	x	x	x
	More rapid pool elevation fluctuations					x		x					x					x	x	x
Yakima and Columbia Basin Project Diversion/Conveyance	New or relocated channels and wetlands						x	x						x	x	x	x	x	x	x
	New recharge areas						x													
	Water velocity increases							x	x			x								
Impervious Surfaces	Run-off rather than infiltration		x	x	x			x			x	x						x	x	
	Stormwater management/infrastructure		x	x			x			x		x								
	Habitat loss												x	x	x	x	x			
Vegetation Alterations	Loss of nutrient and organic inputs, reduced evapotranspiration and bioinfiltration, increased toxin and nutrient loading									x	x	x	x	x						
	Invasive species (terrestrial and aquatic)												x	x				x	x	
	Aquatic species															x	x		x	x
	Increased soil erosion							x					x		x					
Water Quality Impacts	Fertilizer/pesticide/herbicide Inputs											x								
	Effluent inputs											x								
	Temperature increases										x									
	Bioaccumulation of toxins														x	x				
Structural Effects on Habitat	Habitat fragmentation by roads												x	x	x	x	x			
	Over-water structures alter sediment, organic material pathways and the photic zone				x													x	x	x
	Aquatic fill, reduced water storage																	x		
Shoreline Hardening/Stabilization	Habitat loss, replacement of variable sized material with large homogenous substrate												x		x	x	x	x	x	x
	Increased wave energy at toe of slope and energy transfer downstream/down current of hardening							x	x											
	Sediment and subsurface water cycle disruption					x			x											
	Organic material cycle disruption									x										
Channel Realignment	Water velocity increases				x				x									x	x	x
	Reduced floodplain connection and functions					x														
	Decreased temporary storage of sediment, nutrient-, toxin-, or pathogen-laden water in streams								x	x		x								
Other Alterations	Artificial lighting increases light delivery at unnatural times														x	x	x	x	x	x
	Increased noise														x	x	x			
	Recreation infrastructure increases wave energy at shoreline (boat ramps, wakes)							x	x									x	x	x
	Non-native species predation														x	x	x	x	x	x
	Competition for resources from non-native species												x	x	x	x	x	x	x	x

4.2 Restoration Goals and Objectives

As described in Section 3, much work has been done with regard to setting the direction for habitat management and restoration planning in the Richland area. The general management goals identified in the plans for these areas were used to formulate a list of goals and example objectives for this Restoration Plan. These goals and objectives, as follows, will guide the restoration actions described herein and can be used to formulate metrics to monitor progress in implementing the Plan.

1. Protect, maintain, and where feasible, enhance or restore riparian, shrub-steppe, wetland, and floodplain areas within SMP jurisdiction. Example objectives could include removing or managing invasive vegetation and re-planting natives, and consolidating recreation access away from sensitive habitats.
2. Promote and enhance habitat diversity, especially for sensitive or rare areas (e.g., shrub-steppe, riparian zones). Example objectives could include incorporating habitat complexity and vegetative components into soft bank stabilization techniques, or re-connecting off-channel habitat.
3. Protect and maintain water quality, which contributes to the recovery of sensitive species and improves impaired temperatures and contaminant conditions. Example objectives could include implementing Best Management Practices for soil erosion and for applying pesticides, herbicides, and fertilizers in irrigated areas; and reducing unnecessary impervious surface area.

4.3 Restoration Opportunities

Several opportunities now exist for restoration of Richland shorelines, presented below by reach and by specific projects or sites.

4.3.1 General Restoration Opportunities

Various ecological benefits can be realized if shoreline impairments are addressed by restoration in Richland. Opportunities can be identified and compared against various criteria to prioritize implementation. The habitat plans and programs described in Section 3 of this document describe direction and/or recommendations for actions to address many of the impairments that occur within the City. Table 2 shows the restoration or protection

opportunities that these plans and programs have identified, including the reasons for the habitat impairment and a summary of the ecological benefits to be realized from the actions. The SIAC (Anchor QEA 2013) also recommended actions for specific areas within City SMP boundaries, shown in Table 2 by reach and sub-reach (see SIAC report for reach extents).

Major opportunities identified include establishing or protecting sensitive habitats such as riparian, wetland, off-channel, and shrub-steppe habitats. This could be accomplished by consolidating or restricting access to these areas by livestock and recreationists. Former or degraded wetland and off-channel habitats could be reconnected to the Yakima River. WDFW has recommended specific measures for shrub-steppe habitat restoration (WDFW 2011a) and has given direction for managing these habitats in developed areas (WDFW 2011b). Protecting or improving water quality was also a key element of habitat management under these plans, particularly water temperature. Examples of measures that could be used to improve or protect water quality include implementing the most recent state stormwater controls, as well as using best management practices for soil erosion and control of pesticides, herbicides and fertilizers to irrigated areas in more rural areas within the City.

Table 2

Restoration and Protection Opportunities and Priorities[1] in Richland

	Restoration / Protection Opportunities	Key Impairments[2]	Key Benefits to Ecological Functions[2]	Richland (All Reaches)	Reach 1	Reach 2	Reach 3A	Reach 3B	Reach 3C	Reach 4A	Reach 4B	Reach 4C	Reach 5	Reach 6A	Reach 6B	Reach 6C	Reach 7A	Reach 7B	Reach 7C	Reach 7D
1	Establish riparian buffers where absent and/or remove invasives where present	Loss of nutrient and organic inputs, reduced evapotranspiration and bioinfiltration	Riparian vegetation recruitment	*ALYRBC CBOP YSBP YSRP*	*SIAC*	*SIAC*	*SIAC*	*SIAC*	*SIAC*	*SIAC*	*SIAC*	*SIAC*	*SIAC*	*SIAC*	*SIAC*	*SIAC*	*SIAC*	*SIAC*	*SIAC*	
			Temperature/dissolved oxygen improvements																	
			Improve toxin/pathogen management capabilities																	
			Increased habitat for aquatic and terrestrial species foraging/breeding/nesting/migration																	
2	Restore/enhance shrub-steppe along shorelines	Habitat loss - shrub-steppe	Increased native shrub-steppe habitat for terrestrial species foraging/breeding/nesting/migration					*SIAC*	*SIAC*	*SIAC*	*SIAC*	*SIAC*								
3	Protect intact shrub-steppe habitat	NA	Increased native shrub-steppe habitat for terrestrial species foraging/breeding/nesting/migration	***IWRMP***					***SIAC***	***SIAC***	***SIAC***	***SIAC***	***SIAC***	***SIAC***			***SIAC***	***SIAC***	***SIAC***	***SIAC***
4	Reconnect floodplain and/or wetland connectivity, evaluate opportunities for additional side channels and off-channel rearing habitat	Habitat fragmentation	Increased water storage	**CBOP IWRMP YSBP**				**SIAC**		**SIAC**										
		Reduced water storage, and reduced filtration of sediment, nutrient-, toxin-, or pathogen-laden water	Increased subsurface infiltration and flow, protect surface water quality																	
		Habitat loss	Increased hyporheic exchange and groundwater recharge																	
		Sediment and organic material cycle disruption	Increased habitat for terrestrial and aquatic species - foraging/breeding/nesting/migration/rearing																	
5	Protect existing riparian, wetland, and floodplain habitats	NA	Protections for temperature/dissolved oxygen conditions and protection against toxin/pathogen addition	***CBOP YSBP YSRP***	***SIAC***		***SIAC***	***SIAC***	***SIAC***	***SIAC***	***SIAC***	***SIAC***	***SIAC***	***SIAC***			***SIAC***	***SIAC***	***SIAC***	***SIAC***
			Protections for aquatic and terrestrial species - foraging/greeding/nesting/rearing																	
6	Add grass or woody plant strips between agricultural fields and either lakes or streams	Habitat loss	Soil erosion protection																	
			Increased habitat for terrestrial species - foraging/breeding/nesting/migration				*SIAC*													
7	Manage built environment encroachment or recreation use to minimize disturbance to shoreline vegetation and aquatic habitat	Habitat loss	Riparian vegetation recruitment for native terrestrial species foraging/breeding/nesting habitat			*SIAC*			*SIAC*		*SIAC*		*SIAC*		*SIAC*	*SIAC*				
			Temperature/dissolved oxygen improvements																	
			Improved toxin/pathogen management capabilities																	
8	Reduce unnecessary impervious surface area	Run-off rather than infiltration	Increased infiltration and groundwater recharge																	
		Requires more built environment to manage (tormwater management/infrastructure)	Protections for surface water quality																*SIAC*	
		Habitat loss	Increased native terrestrial species foraging/breeding/nesting habitat																	
9	Implement soil erosion BMPs to reduce sediment inputs to drain network	Sediment cycle disruption	Increased subsurface infiltration and flow, protections for surface water quality	**YSBP**																
			Reductions in soil erosion																	
10	Use Best Management Practices for landscape irrigated areas (application rates for pesticides, herbicides, and fertilizers).	Fertilizer/Pesticide/Herbicide Inputs	Improved temperature/dissolved oxygen and protect against toxin and pathogen sources													**SIAC**				
		Effluent Inputs																		
		Temperature increases																		
		Bioaccumulation of toxins																		

Table 2

Restoration and Protection Opportunities and Priorities[1] in Richland

	Restoration / Protection Opportunities	Key Impairments[2]	Key Benefits to Ecological Functions[2]	Richland (All Reaches)	Reach 1	Reach 2	Reach 3A	Reach 3B	Reach 3C	Reach 4A	Reach 4B	Reach 4C	Reach 5	Reach 6A	Reach 6B	Reach 6C	Reach 7A	Reach 7B	Reach 7C	Reach 7D
11	Evaluate appropriate shoreline solutions to support channel migration or delta natural processes	Increased water velocity	Improved surface flow velocity and hyporheic exchange																	
		Reduced floodplain connection and functions and habitat fragmentation	Improved habitat for aquatic species - rearing/migration				**SIAC**							**SIAC**		**SIAC**				
		Sediment and surface water cycle disruption	Improved habitat connectivity and sediment delivery processes																	
12	Incorporate soft shore stabilization where appropriate	Habitat loss along shoreline	Maintained or increased habitat for aquatic species – rearing/migration																	
		Increased wave energy due to shoreline armoring	Reduced soil erosion																	

Notes:

1 Priority categories are Very High (habitat protection actions) - shown in ***bold italics*** , High (actions that restore ecosystem function) shown in **bold,** and Moderate (actions that restore habitat structure) shown in *italics.*

2 Impairment and benefits general categories come from Table 1 of this Restoration Plan

ALYRBC - Assessment of the Lower Yakima River in Benton County, Washington

CBOP - Interim Comprehensive Basin Operating Plan for the Yakima Project

SIAC – Shoreline Inventory, Analysis, and Characterization Report (Anchor QEA)

IWRMP - Yakima River Basin Integrated Water Resource Management Plan

YSBP - Yakima Subbasin Plan

YSRP - Yakima Steelhead Recovery Plan

NA - Not applicable because this is a habitat protection action.

Table 2

Restoration and Protection Opportunities and Priorities[1] in Richland

	Restoration / Protection Opportunities	Key Impairments[2]	Key Benefits to Ecological Functions[2]	Reach 8A	Reach 8B	Reach 8C	Reach 8D	Reach 8E	Reach 8F	Reach 9A	Reach 9B	Reach 9C	Reach 9D	Reach 9E	Reach 10A	Reach 10B	Reach 10C
1	Establish riparian buffers where absent and/or remove invasives where present	Loss of nutrient and organic inputs, 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	*SIAC*	*SIAC*	*SIAC*	*SIAC*	*SIAC*		*SIAC*	*SIAC*	*SIAC*	*SIAC*		*SIAC*	*SIAC*	*SIAC*
2	Restore/enhance shrub-steppe along shorelines	Habitat loss - shrub-steppe	Increased native shrub-steppe habitat for terrestrial species foraging/breeding/nesting/migration	*SIAC*	*SIAC*	*SIAC*	*SIAC*			*SIAC*							
3	Protect intact shrub-steppe habitat	NA	Increased native shrub-steppe habitat for terrestrial species foraging/breeding/nesting/migration	***SIAC***													
4	Reconnect floodplain and/or wetland connectivity, evaluate opportunities for additional side channels and off-channel rearing habitat	Habitat fragmentation	Increased water storage														
		Reduced water storage, and reduced filtration of sediment, nutrient-, toxin-, or pathogen-laden water	Increased subsurface infiltration and flow, protect surface water quality														
		Habitat loss	Increased hyporheic exchange and groundwater recharge														
		Sediment and organic material cycle disruption	Increased habitat for terrestrial and aquatic species - foraging/breeding/nesting/migration/rearing														
5	Protect existing riparian, wetland, and floodplain habitats	NA	Protections for temperature/dissolved oxygen conditions and protection against toxin/pathogen addition				***SIAC***	***SIAC***			***SIAD***	***SIAC***	***SIAC***			***SIAC***	***SIAC***
			Protections for aquatic and terrestrial species - foraging/greeding/nesting/rearing														
6	Add grass or woody plant strips between agricultural fields and either lakes or streams	Habitat loss	Soil erosion protection														
			Increased habitat for terrestrial species - foraging/breeding/nesting/migration														
7	Manage built environment encroachment or recreation use to minimize disturbance to shoreline vegetation and aquatic habitat	Habitat loss	Riparian vegetation recruitment for native terrestrial species foraging/breeding/nesting habitat	*SIAC*		*SIAC*	*SIAC*	*SIAC*	*SIAC*	*SIAC*	*SIAC*	*SIAC*	*SIAC*	*SIAC*	*SIAC*	*SIAC*	*SIAC*
			Temperature/dissolved oxygen improvements														
			Improved toxin/pathogen management capabilities														
8	Reduce unnecessary impervious surface area	Run-off rather than infiltration	Increased infiltration and groundwater recharge														
		Requires more built environment to manage (tormwater management/infrastructure)	Protections for surface water quality														
		Habitat loss	Increased native terrestrial species foraging/breeding/nesting habitat														
9	Implement soil erosion BMPs to reduce sediment inputs to drain network	Sediment cycle disruption	Increased subsurface infiltration and flow, protections for surface water quality														
			Reductions in soil erosion														
10	Use Best Management Practices for landscape irrigated areas (application rates for pesticides, herbicides, and fertilizers).	Fertilizer/Pesticide/Herbicide Inputs	Improved temperature/dissolved oxygen and protect against toxin and pathogen sources				**SIAC**				**SIAC**	**SIAC**	**SIAC**		**SIAC**	**SIAC**	**SIAC**
		Effluent Inputs															
		Temperature increases															
		Bioaccumulation of toxins															

Table 2

Restoration and Protection Opportunities and Priorities[1] in Richland

	Restoration / Protection Opportunities	Key Impairments[2]	Key Benefits to Ecological Functions[2]	Reach 8A	Reach 8B	Reach 8C	Reach 8D	Reach 8E	Reach 8F	Reach 9A	Reach 9B	Reach 9C	Reach 9D	Reach 9E	Reach 10A	Reach 10B	Reach 10C
11	Evaluate appropriate shoreline solutions to support channel migration or delta natural processes	Increased water velocity	Improved surface flow velocity and hyporheic exchange														
		Reduced floodplain connection and functions and habitat fragmentation	Improved habitat for aquatic species - rearing/migration														
		Sediment and surface water cycle disruption	Improved habitat connectivity and sediment delivery processes														
12	Incorporate soft shore stabilization where appropriate	Habitat loss along shoreline	Maintained or increased habitat for aquatic species – rearing/migration	*SIAC*			*SIAC*								*SIAC*	*SIAC*	*SIAC*
		Increased wave energy due to shoreline armoring	Reduced soil erosion														

Notes:

1 Priority categories are Very High (habitat protection actions) - shown in ***bold italics*** , High (actions that restore ecosystem function) shown in **bold,** and Moderate (actions that restore habitat structure) shown in *italics.*

2 Impairment and benefits general categories come from Table 1 of this Restoration Plan

ALYRBC - Assessment of the Lower Yakima River in Benton County, Washington

CBOP - Interim Comprehensive Basin Operating Plan for the Yakima Project

SIAC – Shoreline Inventory, Analysis, and Characterization Report (Anchor QEA)

IWRMP - Yakima River Basin Integrated Water Resource Management Plan

YSBP - Yakima Subbasin Plan

YSRP - Yakima Steelhead Recovery Plan

NA - Not applicable because this is a habitat protection action.

4.3.2 Site-specific Restoration and Protection Opportunities

While most 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 have been suggested for specific areas. Table 3 lists these locations and opportunities, and includes the source document, as well as the impairment to be addressed and the key benefits to ecological function expected as a result of the project implementation.

Table 3
Site-specific Restoration and Protection Opportunities in Richland

	Site	Restoration/Protection Opportunities	Priority[1]	Source	Key Impairments[2]	Key Benefits to Ecological Functions[2]
1	**Bateman Island**	Coordinate low-intensity recreation use management to concentrate riparian, shoreline, and shallow aquatic impacts	Moderate	SMP public visioning workshop 1/23/13	Habitat loss - riparian and wetland	Riparian vegetation recruitment for native terrestrial species foraging/breeding/nesting habitat Protections for temperature/dissolved oxygen conditions and protection against toxin/pathogen addition Reductions in soil erosion
		Remove invasives and replace with native vegetation[3]	Moderate	SIAC, SVMP	Habitat loss	Increased native shrub-steppe habitat for terrestrial species - foraging/breeding/nesting/migration Riparian vegetation recruitment
		Evaluate options for breaching causeway for protection of Bateman Island and reconnection of Yakima River flow	Very High	SIAC	Habitat loss and fragmentation Restricts water movement	Habitat protection for terrestrial and aquatic species - foraging/breeding/nesting/migration/rearing Improved habitat connectivity and sediment delivery processes
2	**Columbia Point South Trail System**	Coordinate low-intensity recreation use management to concentrate riparian, shoreline, and shallow aquatic impacts	Moderate	SMP public visioning workshop 1/23/13	Habitat loss - riparian and wetland	Riparian vegetation recruitment for native terrestrial species -foraging/breeding/nesting habitat Protections for temperature/dissolved oxygen conditions and protection against toxin/pathogen addition Reductions in soil erosion
3	**Marina Vista Estates**	Enhance riparian zone along shoreline	Moderate	SMP public visioning workshop 1/23/13	Habitat loss	Increased native shrub-steppe habitat for terrestrial species - foraging/breeding/nesting/migration Riparian vegetation recruitment
4	**East City Limits to West Side of Columbia Park West**	Set back road from current location; enhance riparian zone along shoreline by removing concrete rubble and retaining wall (replace with boulders), and removing Russian Olive, where reasonably practicable, and other invasive species, and replacing with native riparian vegetation[3]	High	CPWMP; SIAC; SVMP	Habitat loss Sediment and organic material cycle disruption	Increased habitat for terrestrial species - foraging/breeding/nesting/migration Riparian vegetation recruitment Increased native shrub-steppe habitat for terrestrial species - foraging/breeding/nesting/migration
5	**West Side of Columbia Park West to Wye Boat Launch**	Remove, where reasonably practicable, or manage (trim or thin) Russian Olive to enhance foraging habitat for birds, and replace with native riparian vegetation[3]	High	SVMP	Habitat loss	Increased native shrub-steppe habitat for terrestrial species - foraging/breeding/nesting/migration Riparian vegetation recruitment
6	**Wye Boat Launch to SR 240 (Wye Levee)**	Bank stabilization using soft-engineering techniques that also increase habitat functions. Remove Russian Olive, where reasonably practicable, and other invasive species, and replace with native riaparian vegetation[3]	High	SVMP	Habitat loss	Increased native riparian habitat for terrestrial and aquatic species - foraging/breeding/nesting/migration/rearing Riparian vegetation recruitment
7	**Columbia Point South to I-182 Bridge**	Remove, where reasonably practicable, or manage (trim or thin) Russian Olive to enhance foraging habitat for birds, and replace with native vegetation[3]	High	SVMP	Habitat loss	Increased native riparian habitat for terrestrial and aquatic species - foraging/breeding/nesting/migration/rearing Riparian vegetation recruitment
8	**I-182 Bridge to Bradley Landing**	Remove, where reasonably practicable, or manage (trim or thin) Russian Olive to enhance foraging habitat for birds, and remove other invasive species, and replace with native riparian vegetation[3]	High	SVMP	Habitat loss	Increased native riparian habitat for terrestrial and aquatic species - foraging/breeding/nesting/migration/rearing Riparian vegetation recruitment
9	**Bradley Blvd parking lot to South end of Howard Amon Park**	Bank stabilization using soft-engineering techniques that also increase habitat functions. Remove Russian Olive, where reasonably practicable, and other invasive species, and replace with native upland and riparian vegetation[3]	High	SVMP	Habitat loss	Increased native riparian habitat for terrestrial and aquatic species - foraging/breeding/nesting/migration/rearing Riparian vegetation recruitment
10	**Howard Amon Park**	Bank stabilization from boat launch to north end of park using soft-engineering techniques that also increase habitat functions. Remove aged, diseased, and safely hazard trees over time and replace with native trees[3]	High	SVMP	Habitat loss	Increased native riparian habitat for terrestrial and aquatic species - foraging/breeding/nesting/migration/rearing Riparian vegetation recruitment
11	**North end of Haines Street levee to sand volleyball courts in Leslie Groves Park**	Remove, where reasonably practicable, or manage (trim or thin) Russian Olive to enhance foraging habitat for birds, and remove other invasive species, and replace with native riparian and upland vegetation[3]	Med	SVMP	Habitat loss	Increased native riparian habitat for terrestrial and aquatic species - foraging/breeding/nesting/migration/rearing Riparian vegetation recruitment
12	**Sand volleyball courts in Leslie Groves Park to Snyder Street**	Remove, where reasonably practicable, or manage (trim or thin) Russian Olive to enhance foraging habitat for birds, and remove other invasive species, and replace with native riaprian and upland vegetation[3]	High	SVMP	Habitat loss	Increased native riparian habitat for terrestrial and aquatic species - foraging/breeding/nesting/migration/rearing Riparian vegetation recruitment

Table 3
Site-specific Restoration and Protection Opportunities in Richland

	Site	Restoration/Protection Opportunities	Priority[1]	Source	Key Impairments[2]	Key Benefits to Ecological Functions[2]
13	**Snyder Street to Ferry Street**	Remove, where reasonably practicable, or manage (trim or thin) Russian Olive to enhance foraging habitat for birds, and remove invasive species, and replace with native riparian and upland vegetation[3]	High	SVMP	Habitat loss	Increased native riparian habitat for terrestrial and aquatic species - foraging/breeding/nesting/migration/rearing Riparian vegetation recruitment
14	**Gravel mining area South of I-182 and west of SR240 along Carrier Rd**	Enhance wetland habitat and riparian buffers	Moderate	SMP public visioning workshop 2/13/13; also SIAC	Reduced water storage, and reduced filtration of sediment, nutrient-, toxin-, or pathogen-laden water Habitat loss	Increased subsurface infiltration and flow, protect surface water quality Increased riparian vegetation recruitment and habitat for terrestrial and aquatic species - foraging/breeding/nesting/migration/rearing
15	**Columbia River parks (all, particularly north of Howard Amon Park)**	Enhance riparian zone along shoreline in areas not frequently used	Moderate	SMP public visioning workshop 2/13/13	Habitat loss	Increased native shrub-steppe habitat for terrestrial species - foraging/breeding/nesting/migration Riparian vegetation recruitment
16	**South end of Riverside drive along irrigation canal**	Enhance riparian and upland habitat along shoreline slope near canal	Moderate	SIAC	Habitat loss	Increased native shrub-steppe habitat for terrestrial species - foraging/breeding/nesting/migration Riparian vegetation recruitment
17	**Irrigation canal parallelling Columbia Park Trail**	Enhance riparian and upland habitat along shoreline slope near canal	Moderate	SIAC	Habitat loss	Increased native shrub-steppe habitat for terrestrial species - foraging/breeding/nesting/migration Riparian vegetation recruitment

Table 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 1 of this Restoration Plan

3 Trees: Coyote and peachleaf willow, black cottonwood, choke cherry and Red Osier dogwood. Native plants: Big basin sage, blue elderberry, golden currant, mock orange, rabbitbrush, smooth sumac, wood's rose, basin wild rye, Indian ricegrass, thickspike wheatgrass, needle and thread grass and yarrow

CPWMP = Columbia Park West Master Plan (RPR 2012).

SIAC = Shoreline Inventory, Analysis, and Characterization Report (Anchor QEA)

SMP = Shoreline Management Program

SVMP = Draft City of Richland Shoreline Vegetation Maintenance Plan (Pinard 2013)

4.4 Project Evaluation and Prioritization Criteria

Projects and opportunities in this Plan can be evaluated against various criteria to prioritize implementation. The following list includes a description of criteria that indicate that a project is viewed as implementable under this Plan.

Potential projects should:

- Meet goals and objectives for shoreline restoration (Section 4.2 of this document)
- Maintain consistency with existing plans and programs as described in Section 3 of this document
- Have public support
- Be located on public property or property owned by a willing partner in restoration projects
- Restore ecosystem processes or provide habitat protection (those that restore function by providing habitat structure only would take a lesser priority)
- Improve a rapidly deteriorating habitat condition
- Have high benefit to ecosystem function relative to cost
- Provide riparian, shoreline, or instream habitat for spawning and rearing listed salmonids, or improve conditions in sensitive shrub-steppe systems for state and federally listed native wildlife (a list of wildlife are given in WDFW 2011b; e.g., Greater Sage grouse, burrowing owl, Townsend's ground squirrel)

All specific projects or actions that comprise a project listed in Table 2 exhibit some, if not all, of the above criteria. To prioritize these actions, they were assigned to a category of Very High, High, and Moderate relative to their value in achieving the SMP goal of no net loss for shorelines within Richland SMP jurisdiction (See Table 2). Projects were categorized as follows:

1. Very High: Habitat protection projects or actions
2. High: Restoration of ecosystem functions (funded actions take higher priority within this category
3. Moderate: Restoration of habitat structure (funded actions take higher priority within this category

5 IMPLEMENTATION, MONITORING, AND REVIEW

Implementation of the restoration plan will require close coordination among the City, Ecology, and other organizational partners noted in Section 3 of this Plan.

5.1 Potential Restoration Funding Partners

There are currently no dedicated funding sources beyond the projects already funded, and City Parks and Recreation operations and maintenance funding for the restoration actions presented here. Accordingly, much of the restoration described in this Plan is dependent on grant funding, and the variety of outside funding sources available for restoration work. Funds are distributed through grant-making agencies at the local, state, and federal level; opportunities described below are primarily administered by state and federal agencies. It is expected that funding will be derived from various sources. Sources listed here do not represent an exhaustive list of potential funding opportunities, but are meant to provide an overview of the types of opportunities available. These sources include the following:

- American Sportfishing Association's Fish America Foundation Grants
- Benton Conservation District
- City of Richland Parks and Recreation Department
- Ecology
  - Aquatic Weeds Financial Assistance Program
  - Water Quality Grants, including federal Clean Water Act Section 319 Program
  - Coastal Protection Fund (Terry Hussman) Grant Program
  - Coastal Zone Management Administration/Implementation Awards
  - Yakima Basin Integrated Water Resource Management Plan Implementation Funding
- EPA Region 10: Pacific Northwest
  - The Clean Water State Revolving Fund Program
  - Nonpoint Source Implementation Grant (319) Program
  - Wetland Protection, Restoration, and Stewardship Discretionary Funding
- National Fish and Wildlife Foundation

  - Bring Back the Natives: A Public-Private Partnership for Restoring Populations of Native Aquatic Species
  - Five-Star Restoration Matching Grants Program
  - Marine Debris Prevention and Removal Program
  - Native Plant Conservation Initiative
  - The Migratory Bird Conservancy
- Recreation and Conservation Office of Washington
  - Salmon Recovery Funding Board (SRFB)
  - Aquatic Lands Enhancement Account (ALEA)
  - Estuary and Salmon Restoration Program
  - Family Forest Fish Passage Program
  - Land and Water Conservation Fund
  - Yakima Basin Fish and Wildlife Recovery Board
  - Washington Wildlife Recreation Program
- USFWS
  - Partners for Fish and Wildlife Program
  - National Fish Passage Program
  - Cooperative Endangered Species Conservation Fund
  - North American Wetlands Conservation Act Grants Program
- USBR YRBWEP funding program and Yakima Basin Integrated Water Resource Management Plan implementation funding
- NOAA Restoration Center
  - Community-based Restoration Program (CRP)
  - NOAA CRP 3-Year Partnership Grants
  - NOAA CRP Project Grants
- WDFW
  - ALEA Volunteer Cooperative Projects Program
  - Landowner Incentive Program
- Private foundations, businesses, and other groups administer grant programs that include funding for shoreline habitat and ecosystems, including:

- The Russell Family Foundation
- William C. Kenney Watershed Protection Foundation
- Northwest Fund for the Environment
- Kongsgaard-Goldman Foundation
- The Bullitt Foundation
- The Compton Foundation
- Doris Duke Charitable Foundation
- The Hugh and Jane Ferguson Foundation
- Washington Trout
- Mid-Columbia Fisheries Enhancement Group

5.2 Timelines, Benchmarks, and Monitoring

The City's restoration work as it relates to this Plan should be monitored and evaluated on a set timeline against a suite of benchmarks to determine consistency with the State's SMP policy standard of no net loss of ecological functions. This Plan will be implemented when the SMP is adopted by Ecology, and could be implemented with a suggested timeline as below, depending on funding availability.

Within 10 years of Plan adoption, objectives could include the following:

- Complete all projects identified in the City's vegetation management plan currently under development (see initial list of projects and other details included in Table 3).
- Prioritize, fund, and complete a set number of other restoration projects (two to five).
- Explore and solidify regular funding opportunities for future projects.
- Identify and implement public workshops, webpages, or another forum for periodically updating residents on the City's shoreline restoration efforts.

Quantifiable benchmarks should also be noted over time to track changes in shoreline conditions and to create documentation for no net loss of shoreline function. A mechanism to track this county-wide could be established and funded.

Information that could be tracked and monitored can be sourced from permit information, project applications, and completion reports filed with various jurisdictions. Possible data could include the following:

- Shoreline variances and reasons/nature of variance
- Linear distance of new hard armoring or hard armoring removed, above the Ordinary High Water Mark (OHWM)
- Linear distance of new soft shoreline stabilization
- Linear distance of new or enhanced riparian vegetation or vegetation removals
- Number of new docks and coverage area
- Number of new piles or piles removed
- Cubic yardage and coverage area of fill removed or replaced, below the OHWM.
- Number of new boat ramps or boat ramps removed
- Number of new outfalls or outfalls removed/consolidated
- Wetland acreage existing, restored, and lost
- Increase or decreases in impervious surface area

5.3 SMP Review

The City will be required to conduct periodic SMP updates, which will include an evaluation of the efficacy of the SMP and this Restoration Plan. This review will involve comparing past conditions with existing conditions, and assessing whether the actions, policies, and regulations set since the last SMP update have been valuable in ensuring no net loss. The evaluation will be an opportunity to adjust these measures as applicable for the benefit of future shoreline conditions.

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LEGEND

- Interstates
- Highways
- Other Roads
- Incorporated City
- Unincorporated Urban Growth Boundary
- County Boundary
- OHWM and Floodway
- Extent of Shoreline Jurisdiction
- Parcels
- Regulatory Reach

Environment Designation

- Industrial Conservancy
- Natural
- Recreation
- Recreation Conservancy
- Residential
- Rural
- Waterfront

A B C D E F G H I J K L M N O P Q R S T U

NOTES:
1. This information is to be used for planning purposes only. Data is displayed as is and without any guarantee of accuracy or completeness.
2. Split environment designations are not accurately depicted.
3. Aerial image courtesy of ESRI and Bing Maps.

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Regulatory Reaches
Richland Shoreline Master Program
Richland, WA

Council Workshop Coversheet

Council Date: 04/29/2014

Agenda Item : W2

Key Element: Key 2 - Infrastructure & Facilities

Subject: SOUTH RICHLAND SEWER PLANNING STUDY - LOCAL IMPROVEMENT DISTRICT

Department: Public Works

Document Type: Discussion

Summary:

The purpose of the workshop is to solicit Council guidance on two questions:
1. Does Council support staff's analysis and recommendations regarding alternatives selection for the possible local improvement district? and
2. Does Council support proceeding with development of a local improvement district based on the level of planning completed to date?

In mid-2013, property owners within the 2010 Badger Mountain sub-area annexation and the 2013 Reata area annexation expressed interest in forming a local improvement district (LID) to extend City utilities, primarily sewer pipelines to their properties. None of the City's existing sewer planning documents provided guidance for planning and cost estimating the needed facilities. This was because the 2004 General Sewer Plan did not contemplate the Badger Mountain sub-area and the Badger Mountain sub-area plan did not contemplate extension of City sewer pipelines into the Reata annexation area. In the summer of 2013, the City contracted with JUB Engineers to conduct a planning study to support development of the potential LID.

JUB's report identifies two primary sewer system components needed to support the LID:
1. Conveyance of sewage from the east end of the Badger Mountain sub-area to Leslie Road; and
2. Conveyance of increased sewer flows from Bellerive Drive to near the north end of Leslie Road.
JUB's report compares two alternative solutions for accomplishing each of the two linkages described above, one of which requires a pump station and one of which can operate entirely by gravity.

At its February 25 workshop, Council reviewed a proposed set of decision criteria that could be applied to the alternatives. Council feedback suggested that the identified criteria captured the issues needed to complete an evaluation and directed staff to proceed with further analysis to evaluate alternatives based on the criteria. Staff and its consultant have advanced the evaluation. Staff will present the criteria matrix with the information available from the recent evaluations.

The most controversial element of this process is a gravity pipeline alternative that would be located in the Rancho Reata Canyon. This alternative has been eliminated from consideration by Noram, the Badger Mountain South developer. Noram has indicated that the schedule and process uncertainties surrounding this alternative make it impossible for them to support an LID petition with this alternative included.

Staff's analysis is that the Meadow Springs area gravity pipeline is the preferred alternative for that system element. Staff also recommends that the City proceed with the LID because it provides an appealing financing process for completing large-scale system improvements that would otherwise require a much larger investment of City resources. The City will be a minority partner in the LID. Without the LID, the City would plan, finance and implement these improvements and recover the investment over time from development activity and possibly rate revenue.

Attachments:

Post Council Status: Pending

City Manager Approved: Hopkins, Marcia
Apr 24, 10:47:44 GMT-0700 2014