CLARK COUNTY COALITION SMP UPDATE

BATTLE GROUND | CAMAS | CLARK COUNTY | LA CENTER
RIDGEFIELD | VANCOUVER | WASHOUGAL | YACOLT

SHORELINE INVENTORY AND CHARACTERIZATION

Volume 2: Urban Areas
Chapter 6 City of Washougal
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INTRODUCTION

The information in this Clark County Shoreline Inventory and Characterization report is divided into two volumes. This is **Chapter 6,** City of Washougal, of Volume 2, of a two-volume set. Volume 1, Lewis and Salmon-Washougal Watersheds and Rural Areas, contains 11 chapters plus appendices. Volume 2, Urban Areas, contains seven chapters with information specific to each of the cities and their urban areas within Clark County. For more details, see "Report Organization" later in this Introduction.

Background

Clark County and its cities are updating their Shoreline Master Programs (SMPs). Cities and counties are required to amend their local SMPs consistent with the Shoreline Management Act (SMA), and its implementing guidelines (Revised Code of Washington [RCW] 90.58, Washington Administrative Code [WAC] 173-26). The SMP updates are required as part of a statewide program enacted by the 2003 Washington State Legislature (Substitute Senate Bill [SSB] 6012).

In order to obtain the best value for limited state grant funds, Clark County and its cities have formed a coalition to jointly update their SMPs. The Coalition consists of representatives from Clark County and the local jurisdictions within it (Cities of Vancouver, Camas, Washougal, Ridgefield, Battle Ground, and La Center and the Town of Yacolt). The County and its cities are conducting their comprehensive SMP updates in two phases over the next few years. The first phase is the development of the inventory and characterization of the shorelines within Clark County (see Volume 1, Map 1: Vicinity Map). This report provides the inventory and characterization study. In the second phase, the Coalition will update their shoreline management policies and regulations.

This inventory and characterization documents baseline shoreline conditions, evaluates existing functions and values of shoreline resources, and provides a basis for revising SMP goals, policies, and regulations. This characterization will help the Coalition make informed decisions about incorporating their communities' visions for their shorelines, while accommodating growth and other SMA policy objectives, as well as exploring opportunities for conservation and restoration of ecological functions.

Using a landscape approach, this study examined how ecosystem processes relate to shoreline functions. Processes and functions are evaluated at two different scales: (1) a watershed scale, and (2) a shoreline reach scale. The purpose of the watershed characterization is to identify ecosystem processes that shape shoreline conditions and to determine which processes have been altered or impaired. The intent of the shoreline reach scale inventory and characterization is to: (1) identify how existing conditions in or near the shoreline have responded to process alterations; and (2) determine the effects of the alterations on shoreline ecological functions. The findings will help provide a framework for future updates of the shoreline management policies and regulations.

This study was prepared by ESA Adolfson in collaboration with the Clark County Coalition, and with technical assistance from BST Associates, Inc. (BST). BST inventoried and characterized current water-dependent shoreline uses, and conducted an analysis to estimate future demands and trends for such uses.

Funding for the SMP updates has been provided by the Washington State Department of Ecology (Ecology) through an SMA grant (Agreement No. G1000058). As part of the grant agreement, the Coalition is scheduled to complete their draft SMPs by January 20, 2011.

Report Organization

Volume 1, Lewis and Salmon-Washougal Watersheds and Rural Areas, contains 11 chapters plus 6 appendices. Review of Chapters 1 through 4 in Volume 1 will provide the reader a basic understanding of the context for the more detailed inventory and analysis of specific waterbodies within Clark County. The reader can then select subsequent chapters of interest for more in-depth review. Within Volume 1, the inventory and characterization is organized as follows:

- **Chapter 1** discusses the purpose of this report and describes the regulatory context for shoreline planning.
- **Chapter 2** describes the methods, approach, and primary data sources used for this inventory and characterization.
- **Chapter 3** provides a profile of the ecosystems within Clark County. This ecosystem profile provides a regional overview; describes process controls (e.g., climate, geology), fish and wildlife, and key ecosystem-wide processes; and provides a landscape-scale analysis.
- **Chapter 4** is an analysis of trends and future demand for use of the shoreline and potential land use conflicts, countywide.

The Clark County Coalition was purposeful in establishing a watershed approach to this inventory and characterization study. Chapters 5 through 9 are organized around the two main Water Resource Inventory Areas (WRIAs) identified within Clark County (see Volume 1, Map 2: WRIAs and Subbasins).

- **Chapters 5, 6, and 7** provide the shoreline inventory for the portions of Clark County within the Salmon-Washougal Watershed (WRIA 28). The inventory provides physical and biological characterizations of conditions in the vicinity of the shoreline. Water quality characteristics are also described. The chapters also provide assessments of shoreline use patterns, and identify potential opportunity areas for protection, enhancement, restoration, and public access. Waterbodies are described within three sub-watersheds: Lower Columbia River, Washougal River, and Salmon Creek. WRIA 28 includes the Cities of Battle Ground, Camas, Vancouver, and Washougal. Shoreline inventory information specific to these cities is provided in Volume 2.
- **Chapters 8 and 9** include the shoreline inventory and characterizations for waterbodies in the Lewis River Watershed, WRIA 27, including the lower Columbia River, Lewis River, and the East Fork Lewis River sub-watersheds. WRIA 27 includes the Cities of Ridgefield, La Center, and the Town of Yacolt. Shoreline inventory information specific to these jurisdictions is provided in Volume 2.
- **Chapter 10** summarizes the findings and recommendations of the shoreline inventory and characterization.

- **Chapter 11** is the reference list for this study. At the end of Volume 1 are the appendices.
- **Appendix A** is a county-scale map folio that illustrates the shoreline planning areas within Clark County and documents various biological, chemical, land use, and physical elements at the landscape analysis scale.
- **Appendix B** identifies the GIS data sources used in development of all map products in both Volumes 1 and 2.
- **Appendix C** is the *Watershed Characterization for Clark County* (Ecology, July 2009).
- **Appendix D** includes the *Assessment of Water-dependent Recreational, Commercial, and Industrial Uses* report prepared by BST.
- **Appendix E** includes the reach-scale analysis matrices.
- **Appendix F** is a glossary of terms used in this report.

Volume 2, Urban Areas, contains the shoreline inventory and characterization information, including map folios, specific to each of the seven cities. They are organized alphabetically as follows:

- **Chapter 1,** City of Battle Ground;
- **Chapter 2**, City of Camas;
- **Chapter 3**, City of La Center;
- **Chapter 4**, City of Ridgefield;
- **Chapter 5**, City of Vancouver;
- **Chapter 6,** City of Washougal; and
- **Chapter 7,** Town of Yacolt.

One of the goals of the Clark County Coalition is for each of the jurisdictions to have an updated SMP specific to their jurisdiction. Volume 1 provides the shoreline inventory and characterization foundation for unincorporated Clark County's SMP update. It also provides a foundation for each of the cities. Each city section in Volume 2 is designed as a pull-out to be accompanied with Volume 1, to provide a stand-alone document and foundation for development of each city's SMP update.

CHAPTER 6 CITY OF WASHOUGAL

The city of Washougal is located along the Columbia River 22 miles east of the city of Vancouver. The City of Washougal incorporated in 1908 and currently has a population of about 13,900. Three shorelines of the state are located within the city limits and urban growth area (UGA) of Washougal: Columbia River, Washougal River, and Gibbons Creek. Both the Columbia and Washougal Rivers are identified as shorelines of statewide significance. There are a total of five linear stream miles in Washougal. Table 6-1 below shows the breakdown of linear stream miles by waterbody and acreage of shoreline planning area within the city and its UGA.

Table 6-1. Linear Stream Miles and Shoreline Planning Areas by Waterbody in Washougal

Waterbody	Linear Stream Miles (Shoreline Planning Area)	
	City	UGA
Columbia River	2.7 mi (930 ac)	0 mi (43 ac)
Washougal River	1.9 mi (166 ac)	0.4 mi (22 ac)
Gibbons Creek	0.003 mi (9 ac)	0

6.1 Physical and Biological Characterization

6.1.1 Columbia River

6.1.1.1 Drainage Basin, Tributary Streams and Associated Wetlands

The Columbia River is the fourth-largest river by volume in North America. It flows approximately 1,200 miles from its headwaters at Columbia Lake in British Columbia to its mouth on the Pacific Ocean near Astoria, Oregon. (USGS, 2009; NWPCC, undated). The river forms most of the boundary between Washington and Oregon. Washougal is one of the larger cities located along the shorelines of the Columbia River in Washington along with Vancouver and Camas.

The size of the Columbia River shoreline planning area within Washougal and its UGA is 973 acres (including the river itself). Three sub-reaches along the Columbia River lie within Washougal and its UGA; these are identified on Map 2.

Columbia River sub-reach COLU_RV_04b lies adjacent to Washougal, and includes the Port of Camas-Washougal. Columbia River sub-reaches COLU_RV_05a – 05d lie adjacent to Steigerwald Lake National Wildlife Refuge (NWR). The NWR and adjacent areas are in a wide floodplain with extensive wetlands. Gibbons Creek, a small tributary, joins the Columbia River in sub-reach COLU_RV_05d. The Washougal River joins the Columbia River downstream in the city of Camas. Wetland areas within the Columbia River sub-reaches that have been mapped by Clark County are shown in Table 6-2 below and on Map 4.

Table 6-2. Wetland Areas within Columbia River Sub-reaches

Sub-reach	Wetland Area (ac)
COLU_RV_04b	6
COLU_RV_5a	173
COLU_RV_5b	9

6.1.1.2 Process and Channel Modifications

The lower Columbia River has been extensively modified. Some of the process and channel modifications include:

- Installation of numerous dams along the Columbia River and its tributaries;
- Installation of levees that reduce historical floodplain width and channel migration;
- Construction of bridges and marinas;
- Fill and bank armoring;
- Installation of pilings, artificial jetties, and dikes;
- Conversion of forested land to impervious surfaces for urban development and agriculture; and
- Sediment removal to maintain deep channels.

Since the 1930s, the natural flow regime of the Columbia River has been modified by numerous hydroelectric dams on the mainstem of the river and its tributaries. River flows have been altered substantially because of the 21 dams built on the Columbia and Snake Rivers, as well as numerous dams built on tributaries (Lower Columbia Fish Recovery Board, 2004).

6.1.1.3 Geologic and Flood Hazard Areas

Historically, extensive flooding and channel migration occurred on the lower Columbia River. The flooding in the lower Columbia River basin is now controlled partially by the Bonneville, The Dalles, and John Day dams, as well as levees along the Columbia River. The Federal Emergency Management Agency (FEMA) has prepared Flood Insurance Rate Maps (FIRMs) that include the floodplain associated with the one percent chance flood event along the Columbia River (FEMA, 2007). Although the historical channel migration zone (CMZ) is now limited due to development, the channel may migrate within the existing floodplain.

The Columbia River flows over a wide range of terrain. Seismic and flood hazards exist for much of the length of the lower Columbia River. Landslide hazards, earthquake hazard areas, and flood hazard areas are mapped on the Columbia River within Washougal's shoreline planning areas. See Maps 4, 6a, 6b, and 6c for hazard areas.

6.1.1.4 Critical or Priority Habitat and Species Use

The lower Columbia River supports a number of anadromous salmonids as shown in Table 6-3.

Table 6-3. Listed Fish Species Documented for the Lower Columbia River

Common Name	Scientific Name	Population *	Federal Status	Designated Critical Habitat in the Study Area?	Habitat Use
Bull trout	*Salvelinus confluentus*	Lower Columbia River	T	No	Migratory
Chinook salmon	*Oncorhynchus tshawytscha*	Lower Columbia River	T	Yes	Migratory / rearing
		Upper Columbia River, spring-run	E	Yes	Migratory / rearing
		Upper Willamette River	T	Yes	Migratory / rearing
		Snake River, spring/summer and fall runs	T	Yes	Migratory / rearing
Chum salmon	*Oncorhynchus keta*	Columbia River	T	Yes	Migratory / rearing
Coho salmon	*Oncorhynchus kistuch*	Lower Columbia River	T	No	Migratory / rearing
Sockeye salmon	*Oncorhynchus nerka*	Snake River	E	Yes	Migratory / rearing
Steelhead	*Oncorhynchus mykiss*	Lower Columbia River	T	Yes	Migratory / rearing
		Middle Columbia River	T	Yes	Migratory / rearing
		Upper Columbia River	E	Yes	Migratory / rearing
		Upper Willamette River	T	Yes	Migratory / rearing
		Snake River Basin	T	Yes	Migratory / rearing

* Evolutionarily Significant Unit (ESU) or Distinct Population Segment (DPS).

Anadromous salmonids that use the lower Columbia River include: summer and winter steelhead; summer, fall, and spring-runs of Chinook salmon, coho salmon, fall chum salmon, and sockeye salmon (Map 5). Columbia River populations of all of these species are federally listed as threatened or endangered under the Endangered Species Act (70 FR 52630; Table 1).

Anadromous salmonids use the lower Columbia River primarily for migration and rearing; however, chum salmon are known to spawn in the reach of the Columbia River near the I-205 bridge (WDFW, 2009a; WDFW, 2009b). The Columbia River within Clark County is designated as critical habitat for all of the listed anadromous salmonid populations identified above (70 FR 52630: Table 6-3). The Columbia River contains no designated critical habitat for bull trout, also a federally listed species (70 FR 56211). Critical habitat for the Lower Columbia

River (LCR) coho salmon Evolutionarily Significant Unit (ESU) has not been designated at this time and is currently under review.

Other priority habitats and species associated with the Columbia River include wood duck breeding and nesting areas and waterfowl wintering areas (Map 5).

The Washington Department of Natural Resources (WDNR) Natural Heritage Program has not identified priority plant species or vegetation communities in the Columbia River shoreline planning area within the city of Washougal or its UGA (WDNR, 2008).

6.1.1.5 Instream and Riparian Habitats

The construction of upstream hydropower dams has reduced the variability of flow and delivery of sediments, drastically changing the nature of the lower Columbia River and estuary (LCFRB, 2004). In addition, the channelization, dredging, jetties, removal of wetlands, and isolation of wetlands from the former floodplain have altered the character of the lower Columbia River and estuary, and reduced the ability of the river to support the biological systems it historically sustained (LCFRB, 2004). The introduction of non-native and invasive species as well as the continued degradation of water quality have adversely impacted the aquatic ecosystem and biota. The overall changes in flow and sediment delivery have reduced the availability of shallow, low velocity habitats with increasing flow. This combined with the decreased floodplain connectivity has reduced the availability of shallow water habitats that are important for juvenile salmonids, likely contributing to increased juvenile mortality during high flow events (NMFS, 2000).

6.1.1.6 Water Quality

The Washington State Department of Ecology (Ecology) lists the status of water quality for streams, rivers and lakes in one of five different categories recommended by the U.S. Environmental Protection Agency. The Water Quality Assessment represents the integrated report required for Sections 303(d) and 305(b) of the Clean Water Act. The 303(d) list reports on Category 5 waters, which are the "impaired" waters of the state. "Total Maximum Daily Loads" or TMDLs are a key tool in the work to clean up polluted or impaired waters once they are identified. The latest water quality assessment conducted by Ecology was published in 2008.

According to the 2008 Washington State Water Quality Assessment, the lower Columbia River within the jurisdiction of Washougal and its UGA has one 303(d) listing (Category 5) for temperature (Ecology, 2008). There are two Category 4A listings for total dissolved gas (TDG) in water and dioxin (in tissue), which requires the development of a TMDL.

6.1.2 Washougal River

6.1.2.1 Drainage Basin, Tributary Streams and Associated Wetlands

The Washougal River headwaters are in Gifford Pinchot National Forest in Skamania County. It flows southwest through Clark County and Washougal, joining the Columbia River at Camas. The upper watershed is largely forested, and the middle reaches are rural residential and agricultural. The lower four miles of the river flows through Washougal and Camas. The lower part of the river experiences small daily tidal fluctuations from the Columbia River (Parametrix, 2008; Wade, 2001).

The size of the Washougal River shoreline planning area within Washougal and its UGA is 188 acres (including the river itself). Two sub-reaches along the river lie within Washougal and its UGA; these are identified on Map 2.

Wetland areas within the Washougal sub-reaches that have been mapped by Clark County are shown in Table 6-4 below and on Map 4.

Table 6-4. Wetland Areas within Washougal River Sub-reaches

Sub-reach	Wetland Area (ac)
WASH_RV_02b	34
WASH_RV_02c	6

6.1.2.2 Process and Channel Modifications

The Washougal River basin has been extensively modified. Some of the modifications include:

- Urban and suburban development;
- Gravel mining and levees;
- Installation of dikes and rip-rap;
- Splash damming and logging which have left some portions of the river scoured to bedrock;
- Streamside development and channelization associated with agriculture, residential/urban development, and roadways; and
- Disconnected floodplains.

Along the lower 5.5 miles of the river, the area of currently unconstrained floodplain is 27 percent smaller than the historical floodplain (Washougal city limits start at about river mile [RM] 4.5 and end at RM 2) (R2 Resource Consultants, 2004). The reduction may be due to sediment deposition, channel migration, off-channel habitat development, and bank erosion. In the last 150 years, most floodplain surfaces adjacent to the lower 4.2 miles of the Washougal River have been cleared and used for residential development, industrial development, or parks (R2 Resource Consultants, 2004). The loss of 31 acres of historic floodplain has occurred near RM 2 (which is located at the border between Washougal and Camas city limits). This loss of floodplain is caused by a levee which separates the Washougal River from 13 acres of ponds associated with gravel mining.

6.1.2.3 Geologic and Flood Hazard Areas

Flooding along the lower Washougal River is partially confined due to levees. The FEMA FIRMs show some streamflow flooding adjacent to the lower reach of the Washougal River. The existing floodplain in the lower reach of the Washougal River ranges from 0.1 to 0.5 miles wide. Within the Washougal city limits, the Washougal River is classified as having a moderate potential for channel migration (Olson, 2010; Map 4). Downstream of the city limits, the Washougal River is classified as having a moderate potential for channel migration (Olson, 2010; Map 4).

The surface geology in the Washougal River basin downstream of the confluence with the Little Washougal River is composed primarily of unconsolidated sedimentary material (LCFRB, 2004; Map 6c). Landslide hazards, earthquake hazard areas, and flood hazard areas are mapped on the Washougal River within the shoreline planning area (Maps 4, 6a and 6b).

6.1.2.4 Critical or Priority Habitat and Species Use

The Washougal River, including the portion within the city of Washougal, supports federally listed Chinook salmon, chum salmon, coho salmon, and steelhead (Table 6-5) (Map 5). The river is known to provide rearing habitat for juvenile Chinook salmon and serves as a migration corridor in the fall for adult Chinook (WDFW, 2009). Fall chum salmon are documented as using the Washougal River for migration (WDFW, 2009), but spawning habitat has not been documented. The Washougal River is also a documented migration corridor for coho salmon. Summer and winter steelhead spawn in portions of the river and rearing habitat is known for summer steelhead.

The Washougal River, including the portion within the city of Washougal, is designated critical habitat for LCR Chinook salmon and LCR steelhead (70 FR52630). The Washougal River is also designated as critical habitat for Columbia River chum (70 FR52630). Critical habitat for coho salmon has not been proposed.

Table 6-5. Listed Fish Species in the Washougal River

Common Name and Population *	Scientific Name	Federal Status	Designated Critical Habitat in the Study Area?	Habitat Use
Chinook salmon, Lower Columbia River	*Oncorhynchus tshawytscha*	T	Yes	Migratory / rearing
Chum salmon, Columbia River	*Oncorhynchus keta*	T	Yes	Migratory
Coho salmon, Lower Columbia River	*Oncorhynchus kistuch*	T	No	Migratory
Steelhead, Lower Columbia River	*Oncorhynchus mykiss*	T	Yes	Migratory / rearing / spawning

* Evolutionarily Significant Unit (ESU) or Distinct Population Segment (DPS).

Priority habitats associated with the Washougal River include oak woodlands which are mapped within Washougal city limits (WDFW, 2009) (Map 5).

The WDNR Natural Heritage Program has identified small-flowered trillium (State Sensitive) in the Washougal River shoreline planning area within the city of Washougal. No priority plant species or vegetation communities were identified in the city of Washougal UGA shoreline planning area for the Washougal River (WDNR, 2008).

6.1.2.5 Instream and Riparian Habitats

Instream habitat in the lower Washougal River consists primarily of small cobble riffles and glides with approximately two pools every kilometer (R2 Resource Consultants, 2004). Pool depth ranges from 10 to 15 feet (R2 Resource Consultants, 2004). Cascades and large cobble riffles are absent from the lower reaches (RM 0.7 to 4.4). Substrate is primarily gravel and cobbles with some boulders. Fines are largely absent from the Washougal River basin (R2 Resource Consultants, 2004). Large wood is limited in the lower reaches, with 3.5 pieces per kilometer. Active channel width in the mainstem ranges from 100 to 150 feet (R2 Resource Consultants, 2004).

6.1.2.6 Water Quality

The Washougal River within Clark County is not listed as exceeding state water quality standards (Ecology, 2008). Clark County has rated the overall health of the Washougal River as good to excellent based on water chemistry and bacteria (Clark County, 2004). This high rating is likely due to the fact that 63 percent of the Washougal River watershed is forested (Clark County, 2004a). High bacteria levels were observed in the mainstem during one summer and continue to be monitored through the Clark County Public Works volunteer program (Clark County, 2004a).

6.1.3 Gibbons Creek

6.1.3.1 Drainage Basin, Tributary Streams and Associated Wetlands

From forested slopes, Gibbons Creek flows 3.5 miles south then west to the edge of Washougal. At the edge of the city, the river flows south for just over a half mile, flows under bridges at SR 14, and continues south and east for one mile to the Columbia River. Prior to 1966, Gibbons Creek meandered west through a complex of wetlands across the Columbia River floodplain before joining the mainstem (Clark County, 2008). In 1966, this area was diked, drained, and the stream was channelized. In 1992 the stream was further modified and now flows through an artificial elevated channel across the Steigerwald NWR and into the Columbia River through a fish ladder (Clark County, 2008). Gibbons Creek has also been channelized just upstream of SR 14 (Wade, 2001). A diversion structure just downstream of SR 14 prevents most flows from entering the remnant channel. Campen Creek and several first and second order unnamed streams feed Gibbons Creek. The unnamed streams are steep, southwest trending drainages in canyons that are 200 to 300 feet deep (Clark County, 2008).

The size of the Gibbons Creek shoreline planning area within Washougal and its UGA is nine acres (including the stream itself). A small portion of one sub-reach is located within Washougal city limits. See Map 2 for sub-reach location.

No wetlands are mapped by Clark County along Gibbons Creek within the city of Washougal sub-reaches.

6.1.3.2 Process and Channel Modifications

Primary process and channel modifications in the Gibbons Creek watershed include:

- Floodplains that have been reduced or eliminated due to development;
- Forests that have been converted to large lots and pastures; and
- Converted pervious to impervious surfaces such as roads.

Development east of Gibbons Creek is limited due to the Steigerwald NWR and farmland. West of Gibbons Creek, forests have been converted to agricultural and residential purposes, and impervious surfaces have increased (Clark County, 2008c).

6.1.3.3 Geologic and Flood Hazard Areas

Flood hazards occur in the lower reach of the Gibbons Creek watershed, especially near the confluence with the Columbia River. Floods are associated with high flows from the stream and the Columbia River. The riverine flooding is identified in the FEMA FIRMs and shown in Map 4 (FEMA, 2007). The identified flood area in the Gibbons Creek watershed, downstream of the 20 cfs location, is extensive. The floodplain extends laterally for as much as one mile from the stream centerline. Gibbons Creek is classified as having a moderate-high potential for channel migration (Olson, 2010; Map 4).

Severe erosion hazards have not been identified. The Gibbons Creek watershed consists of semi-consolidated sediment upstream (Map 6c). Therefore, there are seismic hazards adjacent to the lower reach of Gibbons Creek. There are no landslide hazards identified in the lower reach of Gibbons Creek, but there are some in the reach upstream of the 20 cfs extent (Map 6a).

6.1.3.4 Critical or Priority Habitat and Species Use

The Gibbons Creek basin supports winter steelhead and coho salmon (Map 5) (WDFW, 2009). A large portion of the basin is designated critical habitat for steelhead (70 FR 52630). The channel below SR 14 is also designated critical habitat for chum (70 FR 52630). Priority wood duck, waterfowl, oak woodlands, and urban natural open space are mapped along lower Gibbons Creek (Map 5) (WDFW, 2009). Freshwater mussels, an indicator of stream health, have been documented in lower Campen Creek, but were not observed in lower Gibbons Creek where access was granted (Washington Trout, 2005).

The WDNR Natural Heritage Program has not identified priority plant species or vegetation communities in the Gibbons Creek shoreline planning area within the city of Washougal or its UGA (WDNR, 2008).

6.1.3.5 Instream and Riparian Habitats

Suitable spawning gravels are the predominant substrate in upper Gibbons Creek and its headwater streams (Wade, 2001). Instream habitat consists of pools and riffles with few to no side channels (Wade, 2001). Average pool depth ranges from one to three feet (Wade, 2001). Large wood is lacking throughout the Gibbons Creek basin and landowners often remove any accumulated debris on the streambanks (Wade, 2001). Woody debris is predominantly made up of small pieces, with total wood observed at 22 to 44 pieces per mile along the mainstem above

SR 14 (Wade, 2001). Riparian habitat is rated "poor" along Gibbons Creek due to the presence of young vegetation and/or clearing of trees (Wade, 2001). Few to no trees shade the stream channel across the diked floodplain south of SR 14.

6.1.3.6 Water Quality

A total maximum daily load (TMDL) for fecal coliform has been established for Gibbons Creek (Ecology, 2008). Fecal coliform levels in Gibbons Creek and Campen Creek routinely exceed water quality criteria established in the TMDL (Clark County, 2006). Fecal coliform levels are higher in Campen Creek than in upper reaches of Gibbons Creek (upstream from the confluence with Campen Creek) and are higher following storm events during the dry season (Clark County, 2006). The lowest fecal coliform levels have been observed in dry periods during the winter months (Clark County, 2006).

6.2 Existing Plans, Programs and Policies

6.2.1 Existing Shoreline Master Program

The City of Washougal Shoreline Management Master Program (Regional Planning Council of Clark County, 1974) was adopted in June 1974, and has not been updated since (see Map 1 for current shoreline jurisdiction). The program applied the following shoreline environment designations to the portions of the Washougal River and the Columbia River that were located within city limits and areas likely to be annexed:

- Urban Environment
- Conservancy Environment

The program established goal statements that "address the broad 'elements' of human activity and concerns which determine the quality of shoreline resources." These include economic development, public access, circulation, recreational, shoreline use, conservation, historical/cultural, shoreline improvement, and floodplain analysis elements. The program also has policy statements for shoreline use activities (e.g., agriculture, dredging).

Administrative provisions for implementing the Shoreline Management Act are included in Chapter 16.16 of the Washougal Municipal Code (City of Washougal, 2009). Chapter 16.16 created a shoreline review committee which is composed of the community development director, one member of the city council and one member of the planning commission. The committee is charged with determining whether a shoreline substantial development permit application is significant or non-significant. Significant applications must be reviewed by the hearing examiner. Chapter 16.16 also establishes application submittal requirements, and criteria for approving substantial development permits and variances.

6.2.2 Comprehensive Plan

The City of Washougal *Updated Comprehensive Plan* (City of Washougal, 2003) outlines general growth management goals over the next 20 years. The plan includes goals and policies for shoreline management, land use, and the environment. It identifies shorelines as having

natural, scenic and recreational value. Fifteen "land use categories" are described in the plan. These categories serve as the basis for more detailed zoning code designations. Land use categories include:

- Single-family Residential Districts: Single-family 5,000 square foot lots, single-family 7,000 square foot lots, single-family 10,000 square foot lots, and single-family 15,000 square foot lots
- Multi-family Residential Districts: AR 16-units/acre and AR 22-units/acre
- Commercial Designations: Convenience commercial, community commercial, highway commercial, and central business district
- Business/Industrial Designations: Light industrial and heavy industrial
- Public Facility Designation
- Park/Open Space Designation
- Urban Reserve Designation

Land use designations are relevant to this shoreline characterization report as they establish the general land use patterns and vision of growth the City has adopted for areas both inside and outside the shoreline planning area.

6.2.3 Zoning Code

Title 18 of the *Washougal Municipal Code* (WMC) establishes zoning districts in the city (City of Washougal, 2009). These districts, which follow land use designations established in the City *Updated Comprehensive Plan*, include six residential zones, five mixed residential/commercial zones, two manufacturing/industrial zones, and an institutional and public district zone.

6.2.4 Critical Areas Regulations

The City of Washougal regulates activities in or adjacent to environmentally sensitive areas under Chapter 16.04 WMC adopted in 2006. Critical areas protected by this code include critical aquifer recharge areas, fish and wildlife habitat conservation areas, frequently flooded areas, geologically hazardous areas, and wetlands. Wetland buffers, riparian areas, and priority habitats and species buffers are also considered critical areas (WMC 16.04.020).

Critical Aquifer Recharge Areas (CARA) include wellhead protection areas, sole-source aquifers, susceptible groundwater management areas, special protection areas, and moderately or highly vulnerable aquifer recharge areas (WMC 16.04.050.) There are CARAs (Category 1 and Category 2) mapped within the shoreline planning areas of the Columbia and Washougal Rivers (Map 4).

Fish and Wildlife Habitat Conservation Areas (FWHCAs) include: riparian habitat; areas with which federal or state designated endangered, threatened, or sensitive species have a primary association; federal or state-listed species that are endangered, threatened, or candidate found within the Washougal city limits or the UGA as of March 17, 2008; habitat areas associated with species of local importance; and Washington State Priority Habitats and Species, which includes waters of the state, commercial and recreational shellfish areas, smelt spawning areas, naturally-occurring ponds under 20 acres, and submerged aquatic beds (WMC 16.04.055). Priority habitats

including urban natural open space, waterfowl concentrations, wood duck and purple martin habitat, and wetlands are mapped within the shoreline planning area of the Columbia River, Gibbons Creek, and the Washougal River within the city of Washougal.

Base stream buffer widths are based upon the stream rating (WDNR Water Typing System). Type S Streams (shorelines of the state – Columbia and Washougal Rivers) have 250-foot buffers; Type F Streams (Gibbons and Campen Creeks and streams over five feet wide) have a 200-foot buffer; other stream buffers range from 75 to 100 feet in width (WMC 16.04.055[6][a]). Other non-riparian FWHCA buffers extend 300 feet, or a threshold based upon consultation with WDFW. Riparian buffers do not extend landward of an existing substantial improvement such as an improved road, levee, or dike, or permanent structure. Local habitats of importance (none currently designated) are protected with a buffer derived from the best available science for the habitat, with a buffer of up to 1,300 feet for species subject to the federal Endangered Species Act (WMC 16.04.055[6][b]).

Frequently Flooded Areas are designated based upon *The Flood Insurance Study for Washougal, Washington* (FIA, 1980) with accompanying FIRMs (WMC 16.04.060). Where applicable, permit requirements under the Shoreline Management Act (Chapter 90.58 RCW) or the State Flood Control Zone Act may be substituted for permits required by the City provided that the City's standards are applied (16.04.060[8]). The WMC provides general standards for activities within the flood hazard zone, including: construction materials and methods and anchoring, and specific standards for a range of other activities (WMC 166.04.060[19] – [26]). Flood hazard areas are mapped within much of the shoreline planning areas of the Washougal River, Columbia River, and Gibbons Creek.

Geologically Hazardous Areas include steep slopes, erodible soils, and geologic hazard areas susceptible to erosion, sliding, earthquake, or other geologic event (WMC 16.04.070). The code applies to properties with slopes of 15 percent or greater, or those mapped by Clark County or the City (WMC 16.04.070[2]). A 50-foot buffer is established from the edge of areas with 25 percent or greater slopes, potentially unstable soils, erosion potential, or seismic activity (WMC 16.04.070[5]). An earthquake hazard area is mapped for all of the shoreline planning areas in Washougal. There are small areas of landslide hazard mapped within the shoreline planning areas of the Columbia and Washougal Rivers.

Wetlands are classified using the *Washington State Department of Ecology Wetland Rating System for Western Washington* (Hruby, 2004). This system rates wetlands into four categories, with Category 1 being the highest and Category 4 the lowest. Buffers are based upon wetland category and the intensity of land use, and base buffer widths range from 25 to 300 feet (WMC 16.04 070). Standard mitigation ratios are provided in WMC 16.04.070[10][A]. There are small areas of wetland mapped within the shoreline planning areas of the Columbia and Washougal Rivers, and Gibbons Creek.

6.2.5 Parks, Open Space Plan

The City of Washougal *Comprehensive Park and Recreation Plan* (City of Washougal, 2006) establishes a vision for Washougal's park system. The plan inventories existing park, open space, and recreational areas in the city; creates and applies level of service (LOS) standards; and

recommends a six-year Capital Improvement Plan to implement park improvements. One of the major results of the needs assessment was that more land should be acquired along the Washougal River and that at least one additional acre of waterfront park land should be targeted for this purpose.

The *Comprehensive Park and Recreation Plan* also established goals that relate to shorelines, including the following (City of Washougal, 2006):

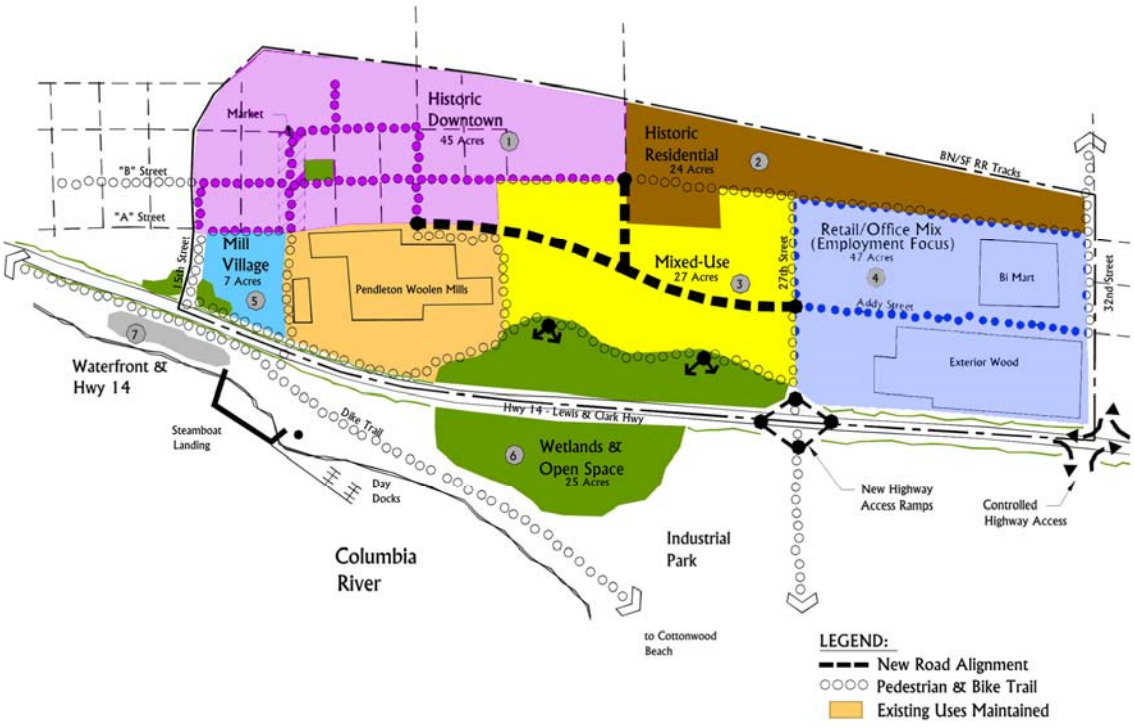
A. Maximize opportunities for public enjoyment of waterfront access (Goal 2).
   - Recognize the Washougal and Columbia Rivers as unique local recreation resources (Goal 2A).
   - Acquire riverfront property or easements whenever the opportunity exists. The long-range objective is a riverfront park and trail system along the Columbia and Washougal Rivers (Goal 2B).
   - Provide opportunities for public access to the waterfront where conditions permit it (Goal 2C).
   - Geographically distribute waterfront parks and access points as practical so there is access throughout the city (Goal 2D).
   - Provide a range of waterfront recreation experiences, from more passive to more active (Goal 2E).

B. Connect neighborhoods with parks, schools, natural open space areas, and the waterfront, as well as downtown and the region (Goal 3).
   - Develop an interconnected pedestrian and bicycle system that connects downtown and neighborhoods with parks, schools, and other features (Goal 3A).
   - Connect the City's pedestrian and bicycle system with the Camas and regional systems (Goal 3B).
   - Develop a network of off-street trails using natural open space areas, parks, utility corridors, and other features. This network can be supplemented with on-street connections where needed to make connections (Goal 3C).
   - Provide trails along the Columbia and Washougal Rivers (Goal 3D).

6.2.6 Downtown Washougal Revitalization Plan

The *Downtown Washougal Revitalization Plan* (E.D. Hovee & Company, 2002) is a master plan intended to guide the revitalization of downtown Washougal. The downtown area is encompassed by the SR 14 highway on the south, the Burlington Northern-Santa Fe (BNSF) railroad line on the north, 15th Street to the west, and 32nd Street on the east (see Figure 6-1). This area is located immediately north of the Columbia River shoreline planning area (sub-reach COL_RV_05a).

Figure 6-1. Downtown Washougal Revitalization



Source: E.D. Hovee & Company, 2002

The plan includes a vision statement to enhance linkages between downtown, the Columbia riverfront, and other community commercial and recreation destinations. The plan also establishes revitalization plan goals for a wetland and open space area (identified as Area 6) located along both sides of SR 14. Plan goals are to:

- Provide trails along the wetlands with view decks and interpretive signage;
- Enhance wetland plantings to create attractive open space and improve wildlife habitat value;
- Assure minimal disturbance to wetlands;
- Maintain an open park-like setting for Pendleton Woolen Mills drainfield; and
- Offer an attractive setting for office campus and mixed-use development.

Revitalization goals for another area located south of the downtown study area (identified as Area 7-Waterfront and Highway 14) were also developed. Goals that may be relevant to the shoreline planning area include:

- Develop off/on-ramps at 27th Street on SR 14;
- Construct a pedestrian overpass or tunnel under SR 14 to Steamboat Landing for river access;
- Rebuild an historic dock for charter boat landing;
- Provide additional parking for dock and trail users;
- Offer day dock facilities;
- Develop interpretive signage along Dike Trail;

- Enhance landscaping along SR 14;
- Connect trails to Parker House (as a potential site for restaurant, lodging and banquet facilities); and
- Offer unique venues such as seasonal theater at Cottonwood Beach for re-enactment.

6.3 Shoreline Use Patterns

6.3.1 Existing Land and Shoreline Uses

Existing uses along the Columbia River in Washougal are mainly industrial and vacant lands (Map 9). Impervious surfaces are concentrated in sub-reach COL_RV_05b (51 percent) which means the reach is the most intensely developed. Impervious area is based on land cover data from the National Oceanic and Atmospheric Administration (C-CAP/NLCD, 2006). The data differentiate between developed open space (0-20 percent impervious), low intensity developed (21-49 percent impervious), medium intensity developed (50-79 percent impervious) and high intensity developed (80-100 percent impervious).

There are two marinas on the Columbia River. One is the Port of Camas-Washougal Boat Ramp and Marina and the other is the Steamboat Landing Marina. Based on review of aerial photos, the Columbia River shorelines are highly modified. Armoring appears most prominent along port areas (Map 8). The Port of Camas-Washougal has 356 moorage slips, many of which are located along covered docks. The marina also has 1,200 linear feet of transient moorage along a dock that is parallel to the shoreline. The Port also has a boat launch site. There is one pier associated with Steamboat Landing in sub-reach COL_RV_05a. Washougal River Road runs parallel to the Columbia River (Map 3).

Existing uses in the Washougal River shoreline planning area are mainly residential (Map 9). Other uses include vacant lands and transportation. Impervious surfaces are highest in sub-reach WASH_RV_02b, indicating more intense development (C-CAP / NLCD, 2006). Within Washougal and the UGA, the Washougal River is crossed by Washougal River Road. North Shepherd Road parallels the north bank of the river between the Washougal River Road crossing and the western city limits (Map 3). There are no other shoreline modifications mapped along the river.

Existing uses along Gibbons Creek are a mix of institutional and commercial (Map 9). Minimal impervious surfaces are located within the Gibbons Creek shoreline planning area, indicating limited development (C-CAP / NLCD, 2006). Jemtegaard Middle School is located to the immediate east. The school district also owns the undeveloped property east of the stream. The shoreline planning area is paralleled by SE Sunset View Road and crosses SE Evergreen Boulevard (Map 3). No shoreline armoring or other modifications are mapped along Gibbons Creek. There are no water-oriented uses within the shoreline planning area.

Existing uses and impervious surfaces are shown in Table 6-6 by reach.

Table 6-6. Existing Uses and Impervious Surfaces in Washougal

Reach	Existing Uses			Impervious Surface (0-100%)
	Use Type	Acreage	Percentage	
COLU_RV_04b	Commercial	1	13%	31%
	Institution	0.14	1%	
	Vacant	9	85%	
COLU_RV_05a	Commercial	9	2%	23%
	Industrial	305	55%	
	Public Facility	39	7%	
	SF Residential	4	1%	
	Transportation	6	1%	
	Vacant	188	34%	
COLU_RV_05b (UGA)	Vacant	100	100%	51%
GIBB_CR_01b	Commercial	0.20	16%	21%
	Institution	1	84%	
WASH_RV_02b	Single-family residential	66	49%	64%
	Mobile Home	23	17%	
	Vacant	23	17%	
	Transportation	11	9%	
	Open Space	8	6%	
	Commercial	1	1%	
WASH_RV_02c	Single-family Residential	6	45%	28%
	Vacant	8	55%	

6.3.2 Shoreline Environment Designations and Zoning

The existing shoreline environment designations along the Columbia River are Conservancy, Rural and Urban. The Washougal River is designated as Conservancy and Urban. Gibbons Creek is designated as Conservancy.

The zoning for properties along the Columbia River is mainly industrial and parks and open space. The predominant zoning designation along the Washougal River is residential single-family. Zoning along Gibbons Creek is residential single-family and public facilities.

A summary of the zoning and shoreline environment designations along the sub-reaches in Washougal is shown in Table 6-7.

Table 6-7. Zoning and Shoreline Environment Designations in Washougal

Reach	Zoning			Existing Shoreline Environment Designations
	Zoning Designation	Acreage	Percentage	
COLU_RV_04b	Commercial	11	100%	Urban
COLU_RV_05a	Commercial	4	1%	Conservancy and Urban
	Industrial	240	58%	
	Parks/Open Space	122	29%	
	Public Facilities	38	9%	
	Residential Single-family	12	3%	
COLU_RV_05b (UGA)	Industrial	30	30%	Conservancy and Rural
	Parks/Open Space	70	70%	
GIBB_CR_01b	Public Facilities	0.3	15%	Conservancy (County)
	Residential Single-family	2	85%	
WASH_RV_02b	Commercial	1	1%	Conservancy and Urban
	Parks/Open Space	20	12%	
	Residential Multi-family	7	4%	
	Residential Single-family	138	83%	
WASH_RV_02c (UGA)	Residential Single-family	22	100%	Urban

6.3.3 Existing Public Access

There are several public access facilities on the Columbia River and the Washougal River (Map 7). A summary of public access facilities is shown in Table 6-8. A description of major facilities, based on the Washougal *Comprehensive Park and Recreation Plan* (City of Washougal, 2006), is provided after the table.

There are currently no formal public access facilities in the Gibbons Creek shoreline planning area. A portion of Mable Kerr Park, an improved green space, lies within this shoreline area; however, it does not provide access to Gibbons Creek because Sunset View Road separates the park from the stream.

Table 6-8. Public Access Facilities in Washougal

Reach	Facility Name	Facility Type	Area or Length within Shoreline	Status
COLU_RV_04b	Marina	Marina	1.8 acres	Developed
COLU_RV_05a	Captain William Clark Park	Regional Park	67.7 acres	Developed
	Cottonwood Beach	Trails	3637 feet	Developed
	Steamboat Landing	Greenspace	1.7 acres	Developed
	Un-named Trail	Trails	3,247 feet	Developed
	USFWS	Natural Resource	67.3 acres	Undeveloped
COLU_RV_05b (UGA)	Un-named Trail	Trails	18 feet	Developed
	USFWS (Steigerwald National Wildlife Refuge)	Natural Resource	64.7 acres	Undeveloped
GIBB_CR_01b	Mable Kerr Park	Undefined Park	1.3 acres	Improved Greenspace
WASH_RV_02b	Hathaway Park	Community Park	8.2 acres	Developed
	River Bend	Neighborhood Park	> 1 acre	Developed
	Sandy Swimming Hole	Community Park	1.3 acres	Developed
	Washougal River	Greenway	< 1 acre	Undeveloped
	Washougal River Greenway	Greenway	3.8 acres	Developed
	WDFW (Barber Access)	Natural Resource	3.5 acres	Undeveloped

6.3.3.1 Port of Camas-Washougal

The Port of Camas-Washougal was formed in 1935. The Port features a 400-acre industrial park, a 79-hangar general aviation airport, and a 350-slip pleasure marina. Grove Field Airport contains a state-of-the-art fueling station and 14 tie-downs. The Port marina is the largest publicly owned marina on the Washington side of the Columbia River. The marina includes a launch ramp, a marina park, guest docks and a homeport for the Dolphin Yacht Club. The four-lane launch ramp is open to the public 24 hours a day and 7 days a week. Other public access amenities provided at the marina include a fueling station, store and public restrooms (Port of Camas-Washougal, 2010b). The marina also contains two restaurants and a hotel. More information about the Port and its ongoing projects can be found at www.portcw.com.

6.3.3.2 Marina Park

Operated by the Port of Camas-Washougal, Marina Park is located on the Columbia River in sub-reach COLU_RV_04b at RM 121.7. The park provides views of Mt. Hood, a walking path, public restrooms, picnic tables and a view deck. Summer concerts are held at the park (Port of Camas-Washougal, 2010b).

6.3.3.3 Parker's Landing Historical Park

Parker's Landing Historical Park could be considered the birthplace of Washougal. This is the location of Parkersville, established by David C. Parker in 1845, who was the first permanent white settler on the north shore of the Columbia River (City of Washougal, 2010). This landing is located within the Port of Camas-Washougal at sub-reach COLU_RV_04b and provides boat access and picnicking, with historical markers and kiosks (Port of Camas-Washougal, 2010b).

6.3.3.4 Captain William Clark Park at Cottonwood Beach

This park is a 75-acre site located near Steamboat Landing on the Columbia River within sub-reaches COLU_RV_05a and 5b. It provides trail and beach access for swimming, wading and picnicking (Photo 6-1). Horses are allowed on the dike trail along with bikes. Lewis and Clark camped at Cottonwood Beach for six days in 1806, the longest period that they stayed at any site in Clark County.

Photo 6-1. Cottonwood Beach

Source: 2N Publications

6.3.3.5 Steigerwald Lake Trail

A 3.5-mile shared use trail for hiking/biking extends from Steamboat Landing to the east end of Steigerwald Lake NWR within sub-reaches COLU_RV_5a and 5b. The trail travels along the dike on the Columbia River with access to Cottonwood Beach.

6.3.3.6 Steigerwald Lake National Wildlife Refuge

Steigerwald Lake NWR is located southeast of Washougal along the Columbia River in sub-reaches COLU_RV_05b and 5c. The 1,049-acre site consists of historic riverine floodplain habitats, wetlands, pastures and cottonwood riparian corridors (Photo 6-2). The NWR lies partially within the Columbia River Gorge National Scenic Area and is designated as the location for a "Gateway to the Gorge" visitor center. However, no funding for the center has been secured to date. Amenities include trails, parking, hiking, and bird watching. The refuge supports anadromous fish, breeding birds, migrating and wintering ducks, geese and other waterfowl. Winter concentrations of geese are documented as are great blue herons (USFWS, 2010).

Photo 6-2. Steigerwald NWR

Source: 2N Publications

The Gibbons Creek Wildlife Trail is a 2.5-mile section of new trail from SR 18 connecting to the Columbia River Dike Trail. This trail is for waterfowl and wildlife viewing and was opened to the public in June 2009 (USFWS, 2010).

6.3.3.7 Reed Island State Park

Primitive camping and picnicking are allowed on this 519-acre marine park on Reed Island. Reed Island supports one of the largest heron rookeries in the Northwest. Access to this island is by boat only and is part of the Columbia River Water Trail. This island lies in the Columbia River channel approximately two miles east of the Port of Camas-Washougal in sub-reach COLU_RV_05d. The island is outside Washougal city and UGA limits.

6.3.3.8 Hathaway Park

Hathaway Park is a 15.8-acre City-owned park on the Washougal River in sub-reach WASH_RV_02b. This park is one of the most visited parks in the city (City of Washougal, 2006). The City is applying for RCO water access grants to replace the boat launch at Hathaway Park. Planned amenities include an ADA-accessible ramp to the beach along with a new boat launch. The existing boat ramp is dilapidated and eroding. WDFW uses this boat launch to plant hatchery fish (City of Washougal, 2010).

6.3.3.9 Sandy Swimming Hole

The Sandy Swimming Hole is located at the upper end of the lower Washougal River Greenway at 550 N. Shephard Road in Washougal in sub-reach WASH_RV_02b. Amenities include restrooms, picnic tables, swimming beach, boat launch and parking.

6.3.3.10 Barber Access

Anglers can access the Washougal River at Barber Access point located on SE Washougal River Road in sub-reach WASH_RV_02b. This is a WDFW-owned water access point that provides bank fishing but no boat launch.

6.3.3.11 Fishing

White sturgeon, green sturgeon, largemouth bass, smallmouth bass, American shad, mountain whitefish, coastal cutthroat trout, and walleye occur in the Columbia River. Game fish such as largemouth bass, mountain whitefish, and resident cutthroat occur in the Washougal River (WDFW, 2009a; WDFW, 2009b).

6.3.4 Historical and Cultural Resources

6.3.4.1 Prehistoric and Archeological Resources

The Columbia River shoreline planning area within Clark County is in the Columbia Valley lowlands, which extend east into the Vancouver Lake lowlands. Ethnographically, Chinookan-speaking peoples lived in the area, focused along the Columbia River. Cowlitz Tribes lived nearby to the north. Cultural resources within the Washougal River sub-reaches along the

Columbia River shoreline planning areas include recorded pre-contact materials and a village site. Recorded materials include lithic scatters (DAHP, 2010). Table 6-9 documents the number of recorded archaeological sites in Columbia River sub-reaches.

Table 6-9. Archaeological Reach Summary for the Columbia River

Sub-reach Number	Jurisdiction	Summary of Identified Archaeological Resources
COL_RV_04b	City of Washougal	1 Pre contact village site
COL_RV_05a	City of Washougal	4 Pre contact lithic material / isolate object sites

Cultural resources within the entire Washougal River and Gibbons Creek shoreline planning areas include several recorded pre-contact materials and campsites. The majority of recorded sites along the Washougal River are within the cities of Washougal and Camas. There is significant probability of unknown archaeological resources occurring within the Gibbons Creek shoreline planning area due to the location of the stream and the documented use of the Clark County area by Chinookan-speaking peoples. Clark County archaeological resource probability mapping suggests there is a significant chance of finding unknown artifacts within almost all of the shoreline planning area (Clark County, 2003).

6.3.4.2 Historic Uses and National and State Registered Sites

Union Woolen Mill opened in 1910 in Washougal on the Columbia River (see Photo 6-3). Constructed on land between Washougal's riverboat land and its railroad tracks, the mill became an important water-related industry. Pendleton Woolen Mills purchased the Washougal mill two years later. Woolen Indian blankets using primarily traditional Native American designs and colors were produced. The Washougal mill introduced the first wool men's shirts in the 1920s. Today (2010), the Pendleton mill in Washougal occupies 70 acres and remains its largest employer (HistoryLink.org, 2010).

Photo 6-3. Union Woolen Mill, Washougal, 1910

Courtesy Clark County Historical Museum (Image No. P15.35.3A)

Historic resources are documented through a variety of sources. Official registers include the National Register of Historic Places, the Washington State Heritage Register, and the Clark County Heritage Register. The Washington Information System for Architectural and Archaeological Records Data and the Clark County Historic Preservation Website were consulted. There are no county-, state-, or federally-listed historic properties within Washougal's shoreline planning areas (DAHP, 2010; Clark County, 2010d). A historic maritime property is inventoried within Washougal along the Columbia River shoreline, but it is not listed on any historic register. No other unregistered historic sites are inventoried (DAHP, 2010).

6.3.5 Areas of Special Interest

There are a significant number of Ecology-listed industrial facilities and contaminated sites within the Columbia River shoreline planning area, including sites located in the port area of Washougal. The number of facilities and sites monitored by Ecology within sub-reaches of the Columbia shoreline area is detailed in Table 6-10. The presence of Ecology-listed facilities and contaminated sites along the Columbia River indicates opportunities for restoration as well as increased potential for contamination of soil, groundwater, and surface water.

Table 6-10. Contaminated Sites Reach Assessment for Columbia River

Reach / Sub-reach Number	Jurisdiction	Active Contaminated Sites – Type and Number	Inactive Contaminated Sites – Type and Number
COL_RV_05a	City of Washougal	EHCR* TIER2 - 4 Haz Waste Mngmnt Activity - 1 Hazardous Waste Generator - 3 LUST Facility Toxics Release Inventory Underground Storage Tank -1 Voluntary Cleanup Sites TOTAL - 9	EHCR TIER2 - 2 Haz Waste Mngmnt Activity Hazardous Waste Generator- 4 LUST Facility - 1 Toxics Release Inventory - 1 Underground Storage Tank -2 Voluntary Cleanup Sites - 1 TOTAL – 9
COL_RV_05b	Washougal UGA	Hazardous Waste Generator - 1 TOTAL – 1	NONE

* Emergency Hazards Chemical Reports (EHCR) are required for businesses that store 10,000 pounds or more of a hazardous chemical or 500 pounds or less, depending on the chemical, of an extremely hazardous chemical on site at any one time.

There are no Ecology-listed facilities or contaminated sites within the Gibbons Creek and Washougal River shoreline planning areas.

6.4 Opportunity Areas

6.4.1 Restoration

6.4.1.1 Columbia River

General restoration measures include:

- Restoration of swamp and marsh habitat within the freshwater portion of the lower Columbia River;
- Dike removal;
- Enhancement of connections between side-channels, sloughs, lakes, and the mainstem;
- Property acquisition of diked lands; and
- Riparian vegetation enhancement.

6.4.1.2 Washougal River

The Washougal River basin is an important system for fisheries and several opportunities exist for protecting existing resources (e.g., headwater forests) while restoring instream habitat elements. A majority of the Washougal River in the study area is identified as a high priority for fish habitat restoration (LCFRB, 2004).

The *Washougal River Greenway Shoreline Inventory and Characterization* (Parametrix, 2008) identified numerous restoration opportunities on the river and its tributaries, such as development of off-channel rearing habitat, restoration of riparian forest, placement of large wood, breaching of levees, and enhancement of spawning gravel. Restoration projects along the lower Washougal River are underway.

The Lower Columbia Fish Recovery Board has identified key restoration priorities for salmon recovery in the Washougal River. The Board's Six-Year Habitat Work Schedule (LCFRB, 2009b) groups these priorities into categories, such as protecting stream corridor structure and function; protecting and restoring hillslope processes; providing for adequate instream flows; restoring riparian conditions; restoring floodplains and channel migration processes; restoring water quality; and restoring access to habitats blocked by artificial barriers. For each of these categories, the report makes specific recommendations for types and in some cases locations of restoration projects.

Other restoration measures and management recommendations include:

- Restore floodplain connectivity where feasible along the lower mainstem and in major tributaries where bank armoring has occurred. Related restoration includes creating off-channel habitat in the lower mainstem for salmon rearing and/or spawning habitat;
- Prevent floodplain impacts from new development through land use controls and best management practices;
- Install large wood in the mainstem to enhance channel conditions;

- Protect and restore native plant communities from the adverse effects of invasive species (HDR-EES, 2006); and
- Continue to control and remove knotweed, an invasive weed that spreads by rhizomes. One and a half miles of the Washougal River were treated in 2007 (Clark County, 2007c).

6.4.1.3 Gibbons Creek

The WRIA 28 Salmon and Steelhead Limiting Factors report (Wade, 2001) identifies excess fine sediment as a major hindrance to salmon habitat in Gibbons Creek. Accumulated sediments frequently have to be cleaned from the diversion structure in Gibbons Creek (USFWS, 2005). The WRIA 28 report recommends restoring natural hydrology and movement of sediment. Other restoration opportunities identified include supplementing LWD; reducing stormwater impacts from upstream development; recreating stream meanders; and reconnecting side-channel habitat.

6.4.2 Public Access

Proposed park improvements in Washougal are outlined in the Washougal *Comprehensive Park and Recreation Plan* (City of Washougal, 2006).

6.4.2.1 Riverbend Park

Improvements are planned for this small neighborhood park on the Washougal River. Access to the river is the major improvement for the park (City of Washougal, 2006).

6.4.2.2 New Park-4

Only one proposed neighborhood park in the shoreline planning area is proposed: New Park (NP4) on the Washougal River, upstream of Hathaway Park. This is a new neighborhood park that would be located near the Turtle Terrace crossing of the Washougal River. The City recommends purchase of two or three acres of land to develop a waterfront park (City of Washougal, 2006).

6.4.2.3 Public Access to Gibbons Creek

Not specifically identified in the Washougal *Comprehensive Park and Recreation Plan* is the opportunity to develop public access to Gibbons Creek. A portion of the Gibbons Creek shoreline planning area is owned by the Washougal School District #112. The City of Washougal, the school district, and Clark County could work cooperatively to develop public access to the Gibbons Creek shoreline through such things as educational and interpretive facilities or trails.

6.4.2.4 Proposed Trails

Several trails are proposed in Washougal that would occur within the City's shoreline planning areas (City of Washougal, 2006):

- The Columbia River Dike Trail would provide an east-west connection in Washougal and viewing opportunities along the Columbia River. This trail currently exists, but should be formalized in accordance with regional trails plans currently being developed in Clark County. The trail should be paved and additional landscaping should be installed to provide screening and nature walk opportunities. Within Washougal, better linkage should be provided between the trail and Steamboat Landing.
- The long-term vision for the Washougal River Trail is to develop a trail adjacent to the river, similar to the trail in the Washougal River Greenway in Camas. In the interim, a trail connection paralleling the river will be provided using existing parks and easements, with on-street linkages provided to connect segments of the riverfront trail.
- The Cedar View-Steigerwald Route is a north-south route on the east side of the city of Washougal. The route would connect the north end of Washougal with Steigerwald NWR. A portion of the route is proposed to align along the east side of Gibbons Creek outside the city and its UGA.

The *Comprehensive Park and Recreation Plan* (City of Washougal, 2006) also recommends developing a water trail on the Columbia and Washougal Rivers. Maps should be developed that indicate launch points, information about waterfront facilities, and points of interest (historic sites visible from the water, significant habitats, etc.). Improving floater and kayak access to the Washougal River is a key step in developing usable water trails.

Table 6-10 shows proposed trails by sub-reach in Washougal based on County GIS data.

Table 6-10. Proposed Trails in Washougal

Reach	Facility Name	Facility Type	Area or Length within Shoreline	Status
COLU_RV_05a	Un-named Trail	Trails	336 feet	Proposed
WASH_RV_02b	Un-named Trail	Trails	4,603 feet	Proposed

6.4.2.5 Proposed Port Developments in Washougal

The following section describes two proposed Port of Camas-Washougal developments that would occur within the Columbia River shoreline planning area.

East Port Industrial Development Plan

The East Port Industrial Development Plan includes 122 acres of land located east of the Port's Washougal Industrial Park. Seventy-eight acres of this land lies within the Washougal city limits and 44 acres outside the city limits but within the UGA. The remaining five acres lies in unincorporated Clark County but within the Columbia River Gorge Scenic Area. The development plan includes development standards and design options for the area (Port of

Camas-Washougal, 2010b). The Steigerwald Commerce Center Development Standards are now available in final draft form on the Port's website (Port of Camas-Washougal, 2010a).

RiverWalk on the Columbia

The Port of Camas-Washougal entered into an agreement with RiverWalk on the Columbia LLC to explore the feasibility of developing a 65-acre mixed use waterfront development. The development is proposed to extend upriver from the Port of Camas-Washougal for more than 3,000 feet along the shoreline. However, this proposal has been put on hold and is currently in arbitration (BST, 2010; Port of Camas-Washougal, 2010b).

6.5 Reach Scale Assessment

Table 6-11. Reach Assessment for Lower Columbia River

Reach Number	Reach Location	Reach Length (miles)	Use Descriptions	Modifications	Unique Features	Riparian Zones	Existing Shoreline Environment Designation (SED)	Restoration Opportunities
COLU_RV_04b	Western city limits to eastern limits of Port of Camas-Washougal Boat Ramp and Marina	0.3	Commercial – 13% Vacant – 85%	356 moorage slips (most under cover), 1,200 linear feet of transient moorage, boat launch facility Armoring associated with the marina.	Port of Camas-Washougal Boat Ramp and Marina	Poor quality. Little to no vegetation	Conservancy	Upgrade moorage facilities to reduce shadow over water Install vegetation strips along shore
COLU_RV_05a	Eastern limits of Port of Camas-Washougal Boat Ramp and Marina to Steigerwald Lake National Wildlife Refuge	2.4	Industrial – 55% Vacant – 34%	2 mapped docks/piers Conversion to residential and industrial lands.	173 acres of wetland Captain William Clark Park Steamboat Landing State-owned open space Hambleton Lumber Company Port of Camas Washougal	Poor to moderate quality. Eastern half along river is vegetated. Western half along river is mainly lawn area. Area associated with Port entirely cleared of vegetation.	Conservancy and Urban	Native vegetation plantings. Wetland enhancement. Proposed mitigation bank adjacent to Steigerwald Lake National Wildlife Refuge. Restore floodplain and connectivity between habitats. Stormwater improvements.
COLU_RV_05b (UGA)	Port of Camas-Washougal vacant property west of Steigerwald Lake National Wildlife Refuge	0	Vacant – 100%	51% impervious surface Area cleared of vegetation	Near Steigerwald National Wildlife Refuge Port-owned property	Poor quality.	Conservancy	Wetland enhancement Restore floodplain and connectivity between habitats. Native vegetation plantings.

Table 6-12. Reach Assessment for Washougal River

Reach Number	Reach Location	Reach Length (miles)	Use Descriptions	Modifications	Unique Features	Riparian Zones	Existing Shoreline Environment Designation (SED)	Restoration Opportunities
WASH_RV_02b	Western city limits to northern city limits	1.9	Single-family residential – 49% Mobile home – 17% Vacant – 17%	64% impervious surface 1 bridge crosses stream Levees	Hathaway Park Washougal River Greenway Barber access	Sparsely vegetated or thin band of riparian vegetation. Surrounding developed areas likely reduce ecosystem health.	Conservancy and Urban	Install LWD to enhance fish habitat. Restore floodplain connectivity. Protect water quality.
WASH_RV_02c (UGA)	Northern city limits to UGA boundary	0.4	Single-family residential – 45% Vacant – 55%	Levees	Large lots	Sparsely vegetated. Surrounding developed areas likely reduce ecosystem health.	Conservancy	Install LWD to enhance fish habitat. Restore floodplain connectivity. Protect water quality.

Table 6-13. Reach Assessment for Gibbons Creek

Reach Number	Reach Location	Reach Length (miles)	Use Descriptions	Modifications	Unique Features	Riparian Zones	Existing Shoreline Environment Designation (SED)	Restoration Opportunities
GIBB_CR_01b	Western bank of stream within city limits	0	Commercial – 16% Institution – 84%	Forest converted to pasture and residential houses.	Mable Kerr Park A road and a railroad crossing. SE Sunset View Road parallels the creek Gibbons Creek Mobile Home Park	Moderate quality. Trees and shrubs along bank, impervious and developed surfaces beyond.	None	Restore riparian zones with native trees. Use BMPs to reduce runoff and improve water quality.