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COMMUNITY PLANNING

MEMORANDUM

TO:	Commissioners Tom Mielke (Chair), David Madore, and Ed Barnes
FROM:	Oliver Orjiako, Director
PREPARED BY:	Gary Albrecht, Planner II, AICP
DATE:	November 18, 2014
SUBJECT:	CPZ 2014-0008 SMP Limited Amendment

The purpose of this hearing is to consider the addition of Carty Lake in a limited amendment to Clark County's Shoreline Master Program.

On August 19, 2014, the Commissioners held a hearing at which they amended Clark County's Shoreline Master Program (SMP) in certain respects. They revised the proposed adopting Ordinance (2014-08-10), however, by striking out the addition of Carty Lake to the SMP. The Commissioners directed staff to work with Washington Department of Ecology and the Port of Ridgefield to discuss the parties' concerns about the proposed Carty Lake amendment.

On September 25th, Clark County Community Planning staff met with the Port of Ridgefield, Department of Ecology, City of Ridgefield, US Fish & Wildlife, Clark Regional Waste Water District, and Clark County Environmental Services to discuss options for treatment of Carty Lake in the Clark County SMP and the City of Ridgefield SMP.

As a result of this meeting, the Port of Ridgefield agreed to withdraw its objection to Clark County adding Carty Lake to the County SMP, provided that changes were made to the August 19, 2014 Staff Report from the Planning Commission to the Board of County Commissioners. The port also wanted its comments inserted into the record for the Errata – Exhibit on Carty Lake, which is part of the Inventory and Characterization Report that is sent to the Department of Ecology as a submittal requirement to amending the SMP. Pursuant to the Port's request, staff has revised these documents.

Most importantly, the Port of Ridgefield and the City of Ridgefield agreed to work together when amending the City's SMP to include Carty Lake and create language that supports the Port of Ridgefield's mission.

Enclosures: Amended PC Recommendations to BOCC Staff Report
Amended Errata – Exhibit A
Original PC Recommendations to BOCC Staff Report

Amended

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COMMUNITY PLANNING

Planning Commission Recommendations to the Clark County Board of Commissioners

FROM: Ron Barca, Acting Chair
Clark County Planning Commission

DATE: August 19, 2014

SUBJECT: CPZ2014-00008 SMP Limited Amendment

RECOMMENDATION: **Approval** of a SHORELINE MASTER PROGRAM LIMITED AMENDMENT to add Carty Lake to the list of lakes subject to the SMP required by the law (WAC 173-20 & RCW 90.58), remove an inconsistency between the use table and prohibited uses related to dredging for restoration, and includes Washington Administrative Code (WAC 173-26-241) language regarding non-water oriented commercial uses.

INTRODUCTION

This limited amendment to the Shoreline Master Program (SMP) in Clark County Code Chapter 40.460 adds Carty Lake to the list of lakes subject to the SMP required by the law (WAC 173-20 & RCW 90.58), removes an inconsistency between the use table and prohibited uses related to dredging for restoration, and includes Washington Administrative Code (WAC 173-26-241(d)(ii)) language regarding non-water oriented commercial uses.

BACKGROUND

Clark County adopted an updated shoreline master program (SMP) in July 2012. It was approved by the Department of Ecology (Ecology) in August 2012 and took effect in September 2012. SMP policies are included in Chapter 13 of the comprehensive plan. SMP regulations are included in Clark County Code Chapter 40.460. In addition to requirements for shoreline development to maintain shoreline ecological function, the regulations also include a list of shorelines along streams and lakes that are subject to the SMP.

As Clark County implemented its SMP Ecology noted that Carty Lake is not on the list of lakes subject to shoreline jurisdiction, but should be. An inconsistency exists relating to dredging for restoration between prohibited uses (40.460.240.G) and Table 40.460.620-1. And lastly, Washington Administrative Code (WAC) language was erroneously omitted from the 2012 SMP relating to non-water oriented commercial uses that are physically separated from the shoreline by another property or public right of way. To

address these issues, a limited amendment to the Clark County SMP is proposed. The amendment will correct inconsistencies in accordance with WAC 173-26-201, process to prepare or amend shoreline master programs.

RECOMMENDATION

The Planning Commission heard this matter on August 7, 2014 and voted **4-1** to recommend approval of the proposal. The Planning Commission recommends that the Board of Clark County Commissioners **APPROVE** the following actions:

1. Amend 40.460.210 C. adding Carty Lake to the list of lakes subject to the SMP
2. Delete 40.460.240 G
3. Revise Dredging definition 40.460.800
4. Amend 40.460.430 (E) (4) (f)
5. Amend footnote 2 in Table 40.460.620-1
6. Amend 40.460.630 (D) (4)

5.8A Carty Lake

Distinguishing a shoreline planning area for Carty Lake posed a challenge because all of the Ridgefield National Wildlife Refuge (NWR) is located in the floodplain of the Columbia River and is essentially a complex of wetlands associated with jurisdictional shorelines. For purposes of this analysis, the planning area was drawn to include wetlands that are identified in the National Wetland Inventory that intersect the line extending 200 feet from the ordinary high water mark (OHWM) of Carty Lake. The planning area boundary for the northern part of the lake was drawn coincident with the wetlands defined in the previous sentence. For the eastern portion of the lake, the mapped full extent of the floodplain was used and for the southern and western boundaries the planning area was coincident with the line drawn 200 feet from the OHWM of the lake. On a project-specific basis, field surveys would be required to define the shoreline area of Carty Lake regulated by the SMP.

5.8A.1 Physical and Biological Characterization

5.8A.1.1 Drainage Basin and Tributary Streams

Carty Lake is a 52 acre lake that lies entirely within the Ridgefield National Wildlife Refuge (RNWR) and is located in the Carty Unit of the refuge, between Lake River on the west, Gee Creek to the north and east, and the City of Ridgefield to the south and east. The lake is approximately 0 .56 miles in length and 0.16 miles wide (USFWS, 2009). Carty Lake lies within the historic lower Columbia River floodplain According to Clark County wetland mapping, 53 acres of the Carty Lake upland shoreline planning area (approximately 77 acres) is mapped as freshwater emergent wetland. Wetlands in the southern end of Carty Lake within the City of Ridgefield have been delineated as part of the Port of Ridgefield clean-up process. Wetlands have been classified as a Category II lake fringe wetland (ELS, 2013).

5.8A.1.2 Process and Channel Modifications

Carty Lake features a low-energy, depositional environment. The southern portion of Carty Lake is within the City of Ridgefield. During high-water events, Gee Creek and Carty Lake can be hydraulically connected at the lake's northern end. Although the lake lies within the Lower Columbia River floodplain, during most of the year Carty Lake has no outlet or connection with the river system.

Based on aerial photography, there has been little modification directly to Carty Lake in the past fifty years. However, development of the Pacific Wood Treatment (PWR) facility to the east and south has altered Carty Lake's natural connections to former floodplains and wetlands to the south.

5.8A.1.3 Geologic and Flood Hazard Areas

The Ridgefield NWR is part of the Lower Columbia River floodplain and Willamette Lowlands, a 5,680 square-mile trough that lies between uplifted marine rocks of the Coast Range to the west and volcanic rocks of the Cascade Range to the east. Most of the soils within the Ridgefield NWR are composed of Sauvie silty clay loam and Sauvie silt loam, deep, moderately well

drained alluvial soil found on terraces with slopes of 0-8 percent. There are no severe erosion hazards or landslide hazards around Carty Lake. Carty Lake is located within the FEMA designated floodway associated with the Columbia River. The 10-year floodplain elevation of Carty Lake is approximately 23.8 feet.

5.8A.1.4 Critical or Priority Habitat and Species Use

The Columbia white-tailed deer is federally listed as endangered and were recently translocated to the Ridgefield NWR; this species is now present in the Carty Unit. Other federally designated species are not known to occur in Carty Lake or its shoreline. Federally-listed anadromous fish species are not likely to utilize Carty Lake for spawning or rearing habitat due to a lack of consistent surface water connection with Gee Creek, Lake River and the Columbia River System. Fish in the lake include primarily warm water species such as carp and large-scale sucker, which have negatively affected water quality and aquatic plants.

Numerous state priority habitats and species are documented in the vicinity of Carty Lake. As part of the Ridgefield lowlands, the Carty Lake shoreline area supports wintering concentrations of Canada geese, Sandhill crane, tundra swan, white fronted geese and dabbling duck. This area also supports nesting habitat for a variety of duck species. The lake contains Washington Department of Fish and Wildlife (WDFW) priority-designated palustrine wetland habitat and Oregon white oak woodland priority habitat occurs to the east and north of the lake.

5.8A.1.5 Instream and Riparian Habitats

The National Wetlands Inventory classifies Carty Lake a lacustrine, limentic, unconsolidated bottom wetland habitat. Aquatic plants, including native wapato occur in the lake, and the fringe wetland is dominated by nonnative, invasive reed canary grass (ELS, 2013). Much of the Carty Lake shoreline is in agricultural use with mowing and other treatment as part of the NWR. Himalayan blackberry is dominant along the bulkhead that separates the Carty Unit and the Port property.

5.8A.1.6 Water Quality

Carty Lake is not listed on the current Ecology 303(d) list for water quality impairments. However, lake sediments have been found to be contaminated as result of former Pacific Wood Treating Company operations on Port of Ridgefield property at the south end of the lake. This area is a Washington State Model Toxics Contract Act (MTCA) cleanup site contaminated with wood-treating related chemicals. Until the 1980s, chemicals from the Pacific Wood Treating Company were allowed to drain directly onto open ground. In 1986, preliminary studies indicated that contaminants such as petroleum hydrocarbons, creosote, chlorinated phenols and trace elements of arsenic, chromium, copper, dioxins and furans were identified. Ecology and the Port of Ridgefield have been working on cleanup efforts at the southern end of Carty Lake, primarily within the City of Ridgefield.

5.8A.2 Shoreline Use Patterns

5.8A.2.1 Existing Land and Shoreline Uses

Carty Lake is part of the Ridgefield NWR Carty Unit and is managed to maximize habitat for waterfowl and other wetland wildlife. The lake has limited recreational use with occasional wildlife observation and photography. Boating is not allowed. The portion of the lakeshore that is within unincorporated Clark County is not developed. Developed portions of the lakeshore and vicinity are located within the City of Ridgefield.

5.8A.2.2 Shoreline Environment Designations and Zoning

Unincorporated portions of Carty Lake zoning and shoreline management is under the jurisdiction of Clark County. The majority of existing zoning along Carty Lake is composed of parks/open space and wildlife refuge designations. As of June 2010, the entirety of the Carty Lake shoreline had a shoreline environment designation of Rural. A summary of the zoning is shown in the following table: Table 5.8A-01

Table 5.8A-01. Carty Lake Existing Zoning (Upland)

Zoning Designation	Acreage	Percentage
Parks/Open Space/Wildlife Refuge (P/OS & P/WL)	42	55%
Water	24	31%
Open space (OS)	7	9%
Waterfront mixed use (WMU)	4	5%
Total	**77**	**100%**

Note: The Clark County Zoning data set for the designation "Water" includes both open water and upland area. The Clark County Waterbodies data set, includes only open water. This table reduced the 65 acres zoned "Water" by 41 acres to highlight only the 24 acres of upland areas.

5.8A.2.3 Existing Public Access

Carty Lake has limited public access and is used for both wildlife habitat and recreational purposes. A mowed seasonal footpath is maintained along the north end of the lake for access to Gee Creek.

5.8A.2.4 Historical and Cultural Resources

The entire Carty Lake shoreline planning area is part of the Shoto Villages-Vancouver Lakes Archaeological District which has been Determined Eligible for listing on the National Register of Historic Places. There are approximately five other recorded sites in the planning area

including both historic and prehistoric sites. There is some information to suggest that one prehistoric site contains burials, however due to conflicting information, further research is needed to clarify this assertion. Clark County archaeological resource probability mapping suggests there is a significant chance of finding unknown artifacts within almost all areas of the County's shoreline planning area (Clark County 2003); the Washington State Archaeological Predictive Model characterizes the entire area as "Very High Risk" (DAHP 2014). Major remnants of the Chinookan Indian Cathlapotle village are located in the Carty Unit of the RNWR at the confluence of the Columbia River, Multnomah Channel, Lake River and Lewis River. A historic Lewis and Clark campsite known as Wapato Portage is also situated in the Carty Unit. There are no county-, state-, or federally-listed historic structures within the Carty Lake shoreline planning area (DAHP, 2010; Clark County, 2010d).

5.8A.2.5 Areas of Special Interest

The former Pacific Wood Treating Company site is an area of special interest to the state.

5.8A.3 Opportunity Areas

5.8A.3.1 Restoration

The riparian areas along the north and south shore have the potential for some riparian/wetland enhancement through increased plantings of native tree and shrub species within the riparian/wetland buffers. The lake appears to be isolated and only engaged with the Columbia River during high flow events. An opportunity may exist to increase connectivity with the Columbia River via Gee Creek or to Lake River through a constructed channel. The Gee Creek connection could provide access to Carty Lake by salmonids.

5.8A.3.2 Public Access

Because the general area around Carty Lake is primarily used for open space and wildlife refuge, preserving Carty Lake for wildlife habitat only is appropriate. The potential exists for development of a loop trail if access from the Port of Ridgefield property were available.

5.8A.4 Reach Scale Assessment

Carty Lake itself lies entirely within the Ridgefield NWR and has been evaluated as one shoreline reach. Table 5.8A-02 provides a brief description of this reach and highlights key modifications, unique features and any restoration opportunities.

Table 5.8A-02. Reach Assessment for Carty Lake

Reach Number	Reach Location	Reach Length (miles)	Land Use Descriptions	Modifications	Unique Features	Riparian Zones	Restoration Opportunities
CARTY_LK	Entire lake and shoreline	1.5 mi	Open space, habitat conservation and remediation	None apparent.	Within the Ridgefield NWR. Approximately 53 acres of	Mostly lacking forested riparian zone	Riparian/wetland enhancement Remediation of contaminated

Reach Number	Reach Location	Reach Length (miles)	Land Use Descriptions	Modifications	Unique Features	Riparian Zones	Restoration Opportunities
					wetland.		soils Reconnect with Columbia River floodplain

Citations:

Clark County. 2010d. Clark County Historic Preservation Website. Available: http://www.co.clark.wa.us/longrangeplan/historic/index.html. Accessed February 2, 2014.

DAHP (Washington State Department of Archaeology and Historic Preservation). 2010. Washington Information System for Architectural and Archaeological Records Data (WISSARD) Online Database. Accessed February 2, 2014. Available: http://www.dahp.wa.gov/pages/wissardIntro.htm.

Ecology. 2013. Cleanup action plan, former Pacific Wood Treating Co. site. Washington State Department of Ecology (Ecology). November 5, 2013.

ELS. 2013. Critical areas report for Carty Lake, Ridgefield, Washington. Ecological Land Services, Inc (ELS). Prepared on August 2, 2013.

Maul, Foster & Alongi, Inc. 2013. Draft Environmental Assessment, Proposed Carty Lake Remedial Action at Ridgefield National Wildlife Refuge; Prepared for the US Fish and Wildlife Service on December 9, 2013, 22 pp.

Original

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COMMUNITY PLANNING

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FROM: Ron Barca, Acting Chair
Clark County Planning Commission

DATE: August 19, 2014

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In the course of implementing the SMP, a conflict in the regulations was discovered through a development proposal on Carty Lake relating to dredging and dredge material disposal. Ecology also noted that Carty Lake is not on the list of lakes subject to shoreline jurisdiction, but should be. An inconsistency exists relating to dredging for restoration between prohibited uses (40.460.240.G) and Table 40.460.620-1. And lastly, Washington Administrative Code (WAC) language was erroneously omitted from the

2012 SMP relating to non-water oriented commercial uses that are physically separated from the shoreline by another property or public right of way. To address these issues, a limited amendment to the Clark County SMP is proposed. The amendment will correct inconsistencies in accordance with WAC 173-26-201, process to prepare or amend shoreline master programs.

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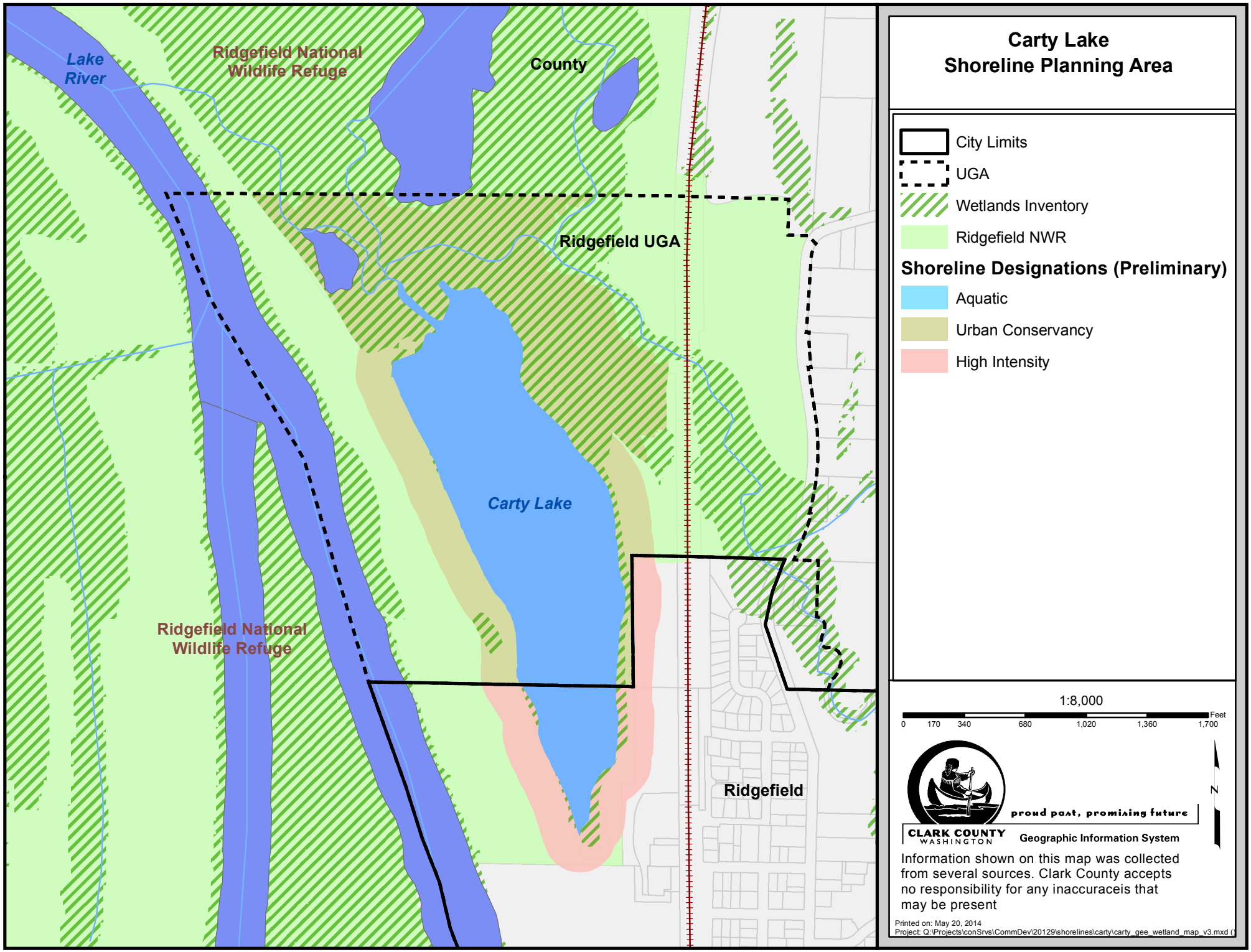
6. Amend 40.460.630 (D) (4)

EXHIBIT 1


Lake River
Ridgefield National Wildlife Refuge
County
Ridgefield UGA
Carty Lake
Ridgefield National Wildlife Refuge
Ridgefield
Carty Lake
Shoreline Planning Area
City Limits
UGA
Wetlands Inventory
Ridgefield NWR
Shoreline Designations (Preliminary)
Aquatic
Urban Conservancy
High Intensity
1:8,000
0 170 340 680 1,020 1,360 1,700 Feet
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CLARK COUNTY WASHINGTON
Geographic Information System
Information shown on this map was collected from several sources. Clark County accepts no responsibility for any inaccuraceis that may be present
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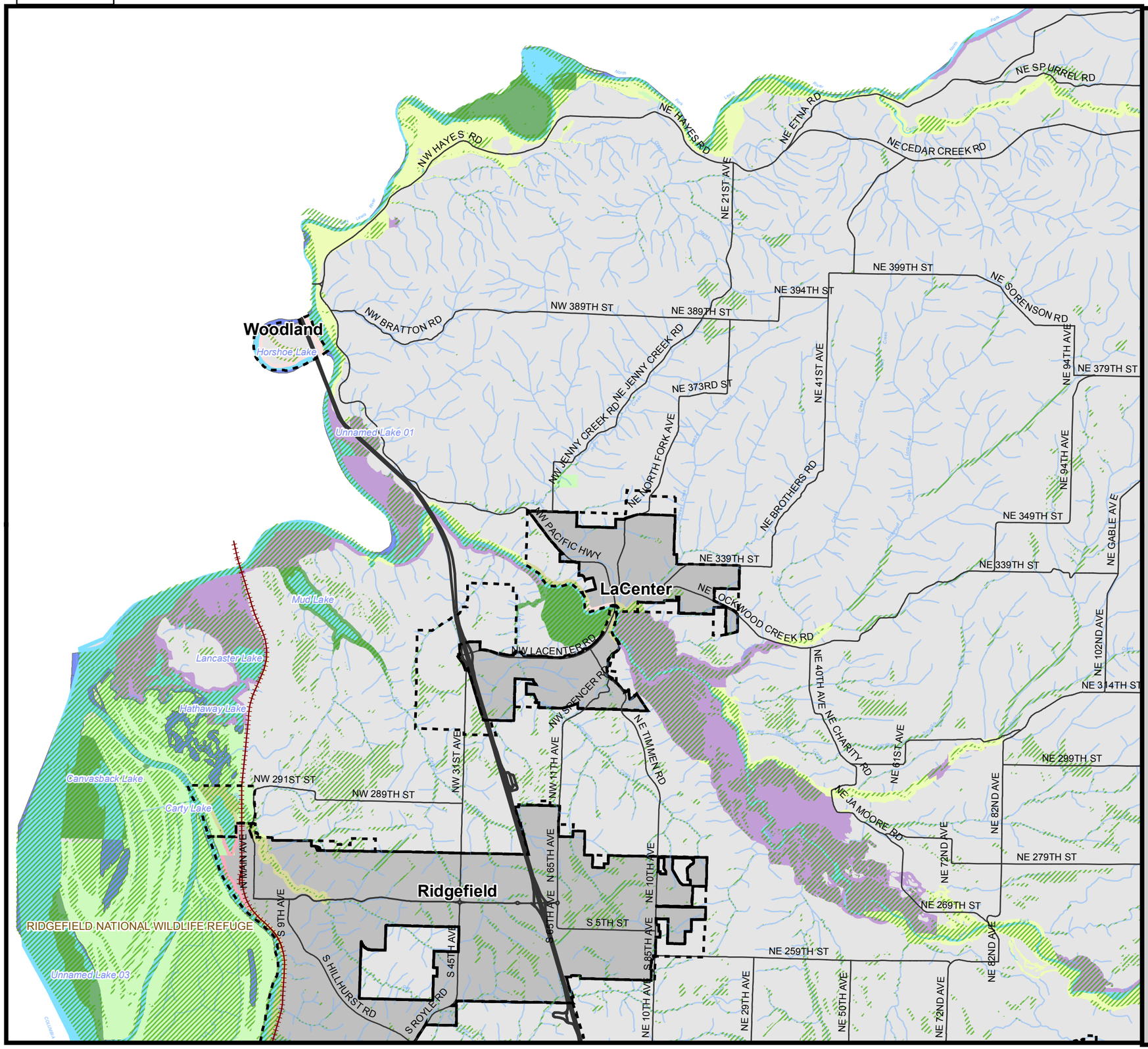
EXHIBIT 2



Carty Lake Proposed Shoreline Designations Clark County Washington

Legend

- City Limits
- Urban Growth Area
- Wetlands Inventory
- Ridgefield NWR

Shoreline Designation

- Aquatic
- High Intensity
- Medium Intensity
- Natural
- Rural Conservancy Residential
- Rural Conservancy Resource Land
- Urban Conservancy

1:64,000

0 2,250 4,500 9,000 13,500 18,000 22,500 Feet

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Geographic Information System

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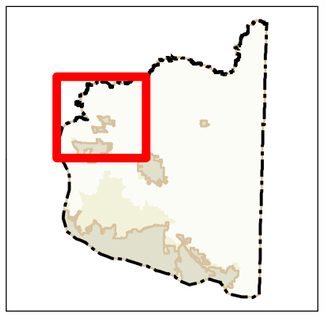

Information shown on this map was collected from several sources. Clark County accepts no responsibility for any inaccuracies that may be present.

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EXHIBIT 3

CLARK COUNTY SMP LIMITED AMENDMENT

Clark County is making three (3) changes to its Shoreline Master Program (SMP):

1. Adding Carty Lake to the list of lakes subject to the SMP.

40.460.210 APPLICABILITY

C. The following are lakes with shorelines subject to this Program:

Lacamas Lake;
Round Lake;
Vancouver Lake;
Unnamed Lake 02 (west of Vancouver Lake);
Post Office Lake;
Green Lake;
Battle Ground Lake;
Campbell Lake;
Unnamed Lake 03 (south of Canvasback Lake);
Canvasback Lake;
Hathaway Lake;
Lancaster Lake;
Mud Lake;
Unnamed Lake 01 (south of Horseshoe Lake);
Horseshoe Lake;
Lake Merwin;
Yale Lake~~.~~;
Carty Lake.

2. Allowing dredging as a use for restoration.

40.460.240 PROHIBITED USES

The following modifications and uses are prohibited in all shoreline designations and are not eligible for review as a shoreline conditional use or shoreline variance. See Sections 40.100.070 and 40.460.800 for definitions of the following modifications and uses:

A. Uses not otherwise allowed in the underlying zoning district;
B. Parking as a primary use;
C. Discharge of solid wastes, liquid wastes, untreated effluents, and other potentially harmful materials;
D. Solid waste facilities;
E. Hazardous waste facilities as defined in Section 40.100.070; and
F. Speculative fill~~; and~~.
~~G. Dredging or dredge material disposal in wetlands, or to construct land canals or small basins for boat moorage or launching, water ski landings, swimming holes or other recreational activities.~~

40.460.800 DEFINITIONS

Dredging	"Dredging" means the removal or displacement of earth or sediments such as gravel, sand, mud, silt, or debris from below the OHWM. ~~of any stream, river, lake, or water body, or wetland~~

3. Change to non-water-oriented commercial uses.

40.460.430 SHORELIINE DESIGNATIONS

E. Medium Intensity Shoreline Designation.

1. Purpose.
The purpose of the “Medium Intensity” shoreline designation is to accommodate primarily residential development and appurtenant structures, but to also allow other types of development that are consistent with this chapter. An additional purpose is to provide appropriate public access and recreational uses.

2. Designation Criteria.
The following criteria are used to consider a Medium Intensity shoreline:
a. The shoreline is located within incorporated municipalities and designated urban growth areas;
b. The shoreline has low to moderate ecological function with low to moderate opportunity for restoration;
c. The shoreline contains mostly residential development at urban densities and does not contain resource industries (agriculture, forestry, mining);
d. The shoreline is planned or platted for residential uses in the comprehensive plan; or
e. The shoreline has low to moderate potential for low-impact, passive or active water-oriented recreation where ecological functions can be restored.

3 Areas Designated.
The Medium Intensity shoreline designation applies to areas as shown on a copy of the Shoreline Map in Appendix B.

4. Management Policies.
In addition to the other applicable policies and regulations of this Program the following management policies shall apply:
a. Encourage regulations that ensure no net loss of shoreline ecological functions as a result of new development such as limiting lot coverage, providing adequate setbacks from the shoreline, promoting vegetation conservation, reducing the need for shoreline stabilization and maintaining or improving water quality to ensure no net loss of ecological functions.
b. The scale and density of new uses and development should be compatible with sustaining shoreline ecological functions and processes, and the existing residential character of the area.
c. Public access and joint (rather than individual) use of recreational facilities should be promoted.
d. Access, utilities, and public services to serve proposed development within shorelines should be constructed outside shorelines to the extent feasible, and be the minimum necessary to adequately serve existing needs and planned future development.

e. Public or private outdoor recreation facilities should be provided with proposals for subdivision development and encouraged with all shoreline development if compatible with the character of the area. Priority should be given first to water-dependent and then to water-enjoyment recreation facilities.
f. Commercial development should be limited to water-oriented uses. Non-water-oriented commercial uses should only be allowed:
   (1) as part of mixed-use developments where the primary use is residential and where there is a substantial public benefit with respect to the goals and policies of this Program such as providing public access or restoring degraded shorelines;
   (2) where navigability is severely limited at the proposed site and the commercial use provides a significant public benefit with respect to the Act's objectives such as providing public access and ecological restoration; or
   (3) if the site is physically separated from the shoreline by another property or public right of way.

F. High Intensity Shoreline Designation.

1. Purpose.
The purpose of the "High Intensity" shoreline designation is to provide for high-intensity water-oriented commercial, transportation, and industrial uses while protecting existing shoreline ecological functions and restoring ecological functions in areas that have been previously degraded.

2. Designation Criteria.
The following criteria are used to consider a High Intensity shoreline designation:
a. The shoreline is located within incorporated municipalities and designated urban growth areas;
b. The shoreline has low to moderate ecological function with low to moderate opportunity for ecological restoration or preservation;
c. The shoreline contains mostly industrial, commercial, port facility, mixed-use, or multi-family residential development at high urban densities and may contain industries that are not designated agriculture, forestry, or mineral resource lands in the comprehensive plan;
d. The shoreline may be or has been identified as part of a state or federal environmental remediation program;
e. The shoreline is planned or platted for high intensity uses in the comprehensive plan; or
f. The shoreline may support public passive or active water-oriented recreation where ecological functions can be restored.

3. Areas Designated.
The High Intensity shoreline designation applies to areas as shown on a copy of the Shoreline Map in Appendix B.

4. Management Policies.
In addition to the other applicable policies and regulations of this Program the following management policies shall apply:
a. Encourage regulations that ensure no net loss of shoreline ecological functions as a result of new development.
b. Promote infill and redevelopment in developed shoreline areas and encourage environmental remediation and restoration of the shoreline, where applicable with the goal of achieving full utilization of designated high-intensity shorelines.
c. Encourage the transition of uses from non-water-oriented to water-oriented uses.

d. Water-oriented uses are encouraged, however new non-water oriented uses may be allowed if that use has limited access to the shoreline and when included in a master plan or part of a mixed-use development.

Table 40.460.620-1. Shoreline Use, Modification, and Development Standards

Table 40.460.620-1. Shoreline Use, Modification, and Development Standards							
Abbreviations P = Permitted; C = Conditional Use; X = Prohibited; N/A = Not Applicable; UNL = Unlimited.	**AQ**	**NT**	**UC (UGA)**	**MI (UGA)**	**HI (UGA)**	**RC-RD**	**RC-RL**
Shoreline Designation	**Aquatic**	**Natural**	**Urban Conservancy**	**Medium Intensity**	**High Intensity**	**RC Residential**	**RC Resource Lands**
Shoreline Uses							
Agriculture							
Agriculture	**X**	**X**	**C**	**P**	**P**	**P**	**P**
• *Structure Setback*	N/A	N/A	100’	100’	100’	100’	100’
• *Structure Height*	N/A	N/A	35’	35’	35’	35’	35’
Aquaculture							
Aquaculture, General	**P**	**X**	**C**	**C**	**C**	**C**	**C**
• *Structure Setback*	0’	N/A	50’	50’	50’	50’	50’
Boating Uses							
Motorized Boat Launches	**P**	**X**	**C**	**C**	**P**	**P**	**P**
Non-motorized Boat Launches	**P**	**C**	**P**	**P**	**P**	**P**	**P**
Marinas	**P**	**X**	**X**	**C**	**P**	**C**	**C**
• *Structure Setback*	0’	N/A	N/A	25’	25’	25’	25’
• *Structure Height*							
- 0-100’ from OHWM	20’	N/A	N/A	25’	35’	25’	35’
- >100’ from OHWM	20’	N/A	N/A	35’	45’	35’	45’
Docks, Piers, Mooring Buoys	**P[1]**	**X**	**P[1]**	**P[1]**	**P[1]**	**P[1]**	**P[1]**
• *Structure Setback*	0’	N/A	0’	0’	0’	0’	0’
Commercial Uses							
Water-dependent	**C**	**X**	**X**	**P**	**P**	**C**	**C**
• *Structure Setback*	0’	N/A	N/A	0’	0’	0’	0’
• *Structure Height*							
- 0-100’ from OHWM	15’	N/A	N/A	35’	35’	35’	35’
- >100’ from OHWM	15’	N/A	N/A	45’	60’	45’	45’
Water-related, Water-enjoyment	**X**	**X**	**X**	**P**	**P**	**C**	**C**
• *Structure Setback*	N/A	N/A	N/A	25’	25’	25’	25’
• *Structure Height*							
- 0’ -100’ from OHWM	N/A	N/A	N/A	25’	35’	35’	35’
- >100’ from OHWM	N/A	N/A	N/A	35’	45’	45’	45’
Non-water-oriented	**X**	**X**	**X**	**C[2]**	**C[2]**	**X**	**X**
• *Structure Setback*	N/A	N/A	N/A	100’	100’	N/A	N/A
• *Structure Height*	N/A	N/A	N/A	25’	25’	N/A	N/A
Forestry							
Log Storage	**C**	**X**	**X**	**X**	**P**	**X**	**P**
• *Setback*	0’	**N/A**	**N/A**	**N/A**	50’	**N/A**	50’
Timber Harvest	**X**	**X**	**C**	**P**	**P**	**P**	**P**
• *Activity Setback*	N/A	N/A	100’	100’	50’	100’	50’
Industrial Uses							

Table 40.460.620-1. Shoreline Use, Modification, and Development Standards							
Abbreviations P = Permitted; C = Conditional Use; X = Prohibited; N/A = Not Applicable; UNL = Unlimited.	**AQ**	**NT**	**UC (UGA)**	**MI (UGA)**	**HI (UGA)**	**RC-RD**	**RC-RL**
Shoreline Designation	**Aquatic**	**Natural**	**Urban Conservancy**	**Medium Intensity**	**High Intensity**	**RC Residential**	**RC Resource Lands**
Water-dependent	**P**	**X**	**X**	**X**	**P**	**X**	**X**
• *Structure Setback*	0’	N/A	N/A	N/A	0’	N/A	N/A
• *Structure Height*							
- 0-100’ from OHWM	20’	N/A	N/A	N/A	UNL	N/A	N/A
- >100’ from OHWM	20’	N/A	N/A	N/A	UNL	N/A	N/A
Water-related	**X**	**X**	**X**	**X**	**P**	**X**	**X**
• *Structure Setback*	N/A	N/A	N/A	N/A	50’	N/A	N/A
• *Structure Height*							
- 0-100’ from OHWM	N/A	N/A	N/A	N/A	UNL	N/A	N/A
- >100’ from OHWM	N/A	N/A	N/A	N/A	UNL	N/A	N/A
Non-water-oriented	**X**	**X**	**X**	**X**	**P**	**X**	**X**
• *Structure Setback*	N/A	N/A	N/A	N/A	100’	N/A	N/A
• *Structure Height*	N/A	N/A	N/A	N/A	35’	N/A	N/A
Institutional Uses							
Water-dependent	**C**	**X**	**C**	**P**	**P**	**C**	**C**
• *Structure Setback*	N/A	N/A	0’	0’	0’	0’	0’
• *Structure Height*							
- 0-100’ from OHWM	N/A	N/A	25’	35’	35’	35’	35’
- >100’ from OHWM	N/A	N/A	35’	45’	35’	45’	45’
Water-related	**X**	**X**	**X**	**P**	**P**	**C**	**X**
• *Structure Setback*	N/A	N/A	N/A	25’	25’	50’	N/A
• *Structure Height*							
- 0-100’ from OHWM	N/A	N/A	N/A	35’	45’	35’	N/A
- >100’ from OHWM	N/A	N/A	N/A	45’	60’	35’	N/A
Non-water-oriented	**X**	**X**	**X**	**C**[2]	**C**[2]	**X**	**X**
• *Structure Setback*	N/A	N/A	N/A	100’	100’	N/A	N/A
• *Structure Height*	N/A	N/A	N/A	35’	35’	N/A	N/A
Mining							
Gravel Mining	**C**[3]	**X**	**X**	**X**	**C**[3]	**C**[3]	**C**[3]
• *Activity Setback*	0’	N/A	N/A	N/A	200’	200’	200’
Hard Rock Mining	**X**	**X**	**X**	**X**	**C**[3]	**C**[3]	**C**[3]
• *Activity Setback*	N/A	N/A	N/A	N/A	100’	100’	50’
Parking							
Primary Use	**X**	**X**	**X**	**X**	**X**	**X**	**X**
• *Structure or Surface Lot Setback*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Accessory Use	**X**	**X**	**P**	**P**	**P**	**P**	**P**
• *Structure or Activity Setback*	N/A	N/A	100’	100’	50’	100’	100’
• *Structure Height*	N/A	N/A	35’	35’	35’	35’	35’
Recreational Uses							
Water-dependent	**P**	**P**[4]	**P**	**P**	**P**	**P**	**P**
• *Structure Setback*	0’	0’	0’	0’	0’	0’	0’
• *Structure Height*	15’	15’	15’	35’	35’	35’	35’
Water-related/enjoyment (trails, accessory buildings)	**C**[4]	**C**[4]	**P**	**P**	**P**	**P**	**P**
• *Structure Setback*	0’	50’[5]	50’[5]	50’[5]	20’	20’	20’
• *Structure Height*	15’	15’	15’	35’	35’	35’	35’

Table 40.460.620-1. Shoreline Use, Modification, and Development Standards							
Abbreviations P = Permitted; C = Conditional Use; X = Prohibited; N/A = Not Applicable; UNL = Unlimited.	**AQ**	**NT**	**UC (UGA)**	**MI (UGA)**	**HI (UGA)**	**RC-RD**	**RC-RL**
Shoreline Designation	**Aquatic**	**Natural**	**Urban Conservancy**	**Medium Intensity**	**High Intensity**	**RC Residential**	**RC Resource Lands**
Non-water-oriented (golf courses, sports fields)	**X**	**X**	**C**	**C**	**C**	**C**	**X**
• *Structure Setback*	N/A	N/A	100’	100’	100’	200’	N/A
• *Structure Height*	N/A	N/A	25’	25’	25’	15’	N/A
Residential Uses							
Single-family	**X**	**X**	**P**	**P**	**X**	**P**	**P**
• *Structure Setback*	N/A	N/A	100’	50’	N/A	100’	100’
• *Structure Height*	N/A	N/A	35’	35’	N/A	35’	35’
• *Density*	N/A	N/A	In accordance with the underlying zoning				
Floating homes (new)	**X**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
• *Structure Height*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Floating homes (existing)	**P**	**N/A**	**N/A**	N/A	**N/A**	**N/A**	**N/A**
• *Structure Height*	Existing	N/A	N/A	N/A	N/A	N/A	N/A
Multifamily	**X**	**X**	**X**	**P**	**P**	**X**	**X**
• *Structure Setback*	N/A	N/A	N/A	35’	35’	N/A	N/A
• *Structure Height*	N/A	N/A	N/A	35’	35’	N/A	N/A
• *Density*	N/A	N/A	N/A	In accordance with the underlying zoning		N/A	N/A
Signs							
Agricultural	**X**	**X**	**P**	**X**	**P**	**P**	**P**
Fascia or Wall Signs	**X**	**X**	**X**	**P**	P	P	P
Free Standing Informational	**P**	**P**	**P**	**P**	**P**	**P**	**P**
High School Electronic Message	**X**	**X**	**P**	**P**	**P**	**P**	**P**
Monument	**X**	**P**	**P**	**P**	**P**	**P**	**P**
Navigation	P	P	P	P	P	P	P
Transportation Uses							
Highways, Arterials, Railroads (parallel to OHWM)	**C**	**X**	**P**	**P**	**P**	**P**	**P**
• *Right-of-Way Setback*	0’	N/A	200’	100’	100’	200’	200’
Secondary/Public Access Roads (parallel to OHWM)	**X**	**X**	**P**	**P**	**P**	**P**	**P**
• *Right-of-Way Setback*	N/A	N/A	100’	50’	50’	100’	100’
Roads perpendicular to the OHWM	**X**	**X**	P	P	P	P	P
• *Setback*	N/A	N/A	Limited to the setback for the use the road is serving[6]				
Bridges (perpendicular to shoreline)	**C**	**C**	**C**	**P**	**P**	**C**	**C**
• *Structure Setback*	0’	0’	0’	0’	0’	0’	0’
Utility Uses							
Above-ground Utilities (parallel to shoreline)	**C**	**C**	**P**	**P**	**P**	**P**	**P**
• *Right-of-Way Setback*	0’	200’	100’	50’	50’	100’	100’
• *Structure Height*	15’	15’	35’	35’	UNL	15’	15’
• *Distribution Pole Height*	0’	45’	45’	45’	UNL	45’	45’
Electrical Transmission Lines	**C**	**C**	**C**	**C**	**C**	**C**	**C**
• *Tower Height*	UNL	UNL	UNL	UNL	UNL	UNL	UNL
Underground Utilities (parallel to shoreline)	**C**	**C**	**P**	**P**	**P**	**P**	**P**
• *Right-of-Way Setback*	0’	200’	100’	50’	50’	50’	50’
Underground Utilities (perpendicular	**C**	**C**	**C**	**C**	**C**	**C**	**C**

Table 40.460.620-1. Shoreline Use, Modification, and Development Standards							
Abbreviations P = Permitted; C = Conditional Use; X = Prohibited; N/A = Not Applicable; UNL = Unlimited.	**AQ**	**NT**	**UC (UGA)**	**MI (UGA)**	**HI (UGA)**	**RC-RD**	**RC-RL**
Shoreline Designation	**Aquatic**	**Natural**	**Urban Conservancy**	**Medium Intensity**	**High Intensity**	**RC Residential**	**RC Resource Lands**
to shoreline)							
• *Right-of-Way Setback*	0’	0’	0’	0’	0’	0’	0’
Unclassified Uses							
Unclassified Uses	**C**	**C**	**C**	**C**	**C**	**C**	**C**
• *Structure or Activity Setback*	0’	200’	100’	100’	100’	100’	100’
• *Structure Height*	15’	15’	35’	35’	35’	35’	35’
Shoreline Modification							
Dredging and Dredge Material Disposal							
Non-maintenance Dredging	**C**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Maintenance Dredging	**P**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Dredge Material Disposal	**C**	**X**	**X**	**C**	**C**[7]	**C**	**C**
Dredging & Disposal as part of Ecological Restoration/ Enhancement	**P**	**C**	**P**	**P**	**P**	**P**	**P**
Fill							
Speculative	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Other	**C**[8]	**P**[9]	**P**	**P**	**P**	**P**	**P**
Flood Control Works and In-stream Structures							
Dams, Dikes, & Levees	**C**	**X**	**C**	**C**	**P**	**C**	**C**
In-stream structures	**C**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Shoreline Restoration							
Ecological Restoration / Enhancement / Mitigation	**P**	**P**	**P**	**P**	**P**	**P**	**P**
Shoreline Stabilization							
Bioengineered	**P**	**P**	**P**	**P**	**P**	**P**	**P**
Structural (i.e., bulkheads and revetments)	**C**	**X**	**C**	**C**	**C**	**C**	**C**
Breakwaters, Jetties, Rock Weirs, and Groins	**C**	**X**	**C**	**C**	**C**	**C**	**C**

[1] Private docks permitted as joint-use only (see Section 40.460.630(C)(4)(j)).

[2] See Section 40.460.630(D)(4). ~~As part of mixed-use development only.~~

[3] In Surface Mining Overlay areas only.

[4] Low intensity only.

[5] Water-related/enjoyment features such as viewpoints, gazebos, or fishing piers may have a zero (0) foot setback when connected to a public access trail.

[6] New roads may connect to existing roads within shoreline jurisdiction as long as the connection is landward of the existing road and the ordinary high water mark.

[7] Permitted outside of channel migration zones.

[8] See Section 40.460.560(B)(10).

[9] Permitted for restoration only; otherwise prohibited.

Note: Setbacks are landward from the OHWM in the NT, UC, MI, HI, RC-RD, and RC-RL shoreline designations; setbacks are waterward of the OHWM in the AQ shoreline designation.

40.460.630 USE-SPECIFIC DEVELOPMENT REGULATIONS

D. Commercial Uses.

1. Water-oriented commercial uses are preferred over non-water-oriented commercial uses.
2. An applicant for a new commercial use or development shall demonstrate that:
   a. There will not be a net loss of shoreline ecological function by reason of the use or development; and
   b. The use or development will have no significant adverse impacts to other shoreline resources or other shoreline uses.
3. Loading, service areas, and other accessory uses and structures shall be located landward of a commercial structure or underground whenever possible, but shall in no case be waterward of the structure. Loading and service areas shall be screened from view with native plants.
4. Where allowed, non-water-oriented commercial uses may be permitted: ~~only as part of a mixed-use development that:~~
   a. as part of mixed-use developments where the primary use is residential and where there is a substantial public benefit with respect to the goals and policies of this Program such as providing public access or restoring degraded shorelines;
   b. where navigability is severely limited at the proposed site and the commercial use provides a significant public benefit with respect to the Act's objectives such as providing public access and ecological restoration; or
   c. if the site is physically separated from the shoreline by another property or public right of way.
   ~~a. Has a formally approved master plan that complies with this Program, including having demonstrated consistency with policies of Section 40.460.300 if its proposed location is on a shoreline of statewide significance;~~
   ~~b. Includes water-oriented uses; and~~
   ~~c. Provides a significant public benefit such as public access and/or ecological restoration.~~
5. Non-water-oriented commercial uses may occupy:
   a. Up to a total of twenty-five percent (25%) of the total frontage length of all parcels in the master planned development (regardless of ownership); or
   b. Up to a total of twenty-five percent (25%) of the total project area within shoreline jurisdiction of all parcels in the master planned development (regardless of ownership).

5.8A Carty Lake

Distinguishing a shoreline planning area for Carty Lake posed a challenge because all of the Ridgefield National Wildlife Refuge (NWR) is located in the floodplain of the Columbia River and is essentially a complex of wetlands associated with jurisdictional shorelines. For purposes of this analysis, the planning area was drawn to include wetlands that are identified in the National Wetland Inventory that intersect the line extending 200 feet from the ordinary high water mark (OHWM) of Carty Lake. The planning area boundary for the northern part of the lake was drawn coincident with the wetlands defined in the previous sentence. For the eastern portion of the lake, the mapped full extent of the floodplain was used and for the southern and western boundaries the planning area was coincident with the line drawn 200 feet from the OHWM of the lake. On a project-specific basis, field surveys would be required to define the shoreline area of Carty Lake regulated by the SMP.

5.8A.1 Physical and Biological Characterization

5.8A.1.1 Drainage Basin and Tributary Streams

Carty Lake is a 52 acre lake that lies entirely within the Ridgefield National Wildlife Refuge (RNWR) and is located in the Carty Unit of the refuge, between Lake River on the west, Gee Creek to the north and east, and the Port of Ridgefield to the south and east. The lake is approximately 0 .56 miles in length and 0.16 miles wide (USFWS, 2009). Carty Lake lies within the historic lower Columbia River floodplain According to Clark County wetland mapping, 53 acres of the Carty Lake upland shoreline planning area (approximately 77 acres) is mapped as freshwater emergent wetland. Wetlands in the southern end of Carty Lake have been delineated as part of the Port of Ridgefield clean-up process. Wetlands have been classified as a Category II lake fringe wetland (ELS, 2013).

5.8A.1.2 Process and Channel Modifications

Carty Lake features a low-energy, depositional environment. The southern portion of Carty Lake is separated from Port of Ridgefield property (Miller's Landing, formerly known as the Lake River Industrial Site by a failing treated-wood bulkhead. During high-water events, Gee Creek and Carty Lake can be hydraulically connected at the lake's northern end. Although the lake lies within the Lower Columbia River floodplain, during most of the year Carty Lake has no outlet or connection with the river system.

Based on aerial photography, there has been little modification directly to Carty Lake in the past fifty years. However, development of the Pacific Wood Treatment (PWR) facility to the east and south has altered Carty Lake's natural connections to former floodplains and wetlands to the south.

5.8A.1.3 Geologic and Flood Hazard Areas

The Ridgefield NWR is part of the Lower Columbia River floodplain and Willamette Lowlands, a 5,680 square-mile trough that lies between uplifted marine rocks of the Coast Range to the west and volcanic rocks of the Cascade Range to the east. Most of the soils within the Ridgefield

NWR are composed of Sauvie silty clay loam and Sauvie silt loam, deep, moderately well drained alluvial soil found on terraces with slopes of 0-8 percent. There are no severe erosion hazards or landslide hazards around Carty Lake. Carty Lake is located within the FEMA designated floodway associated with the Columbia River. The 10-year floodplain elevation of Carty Lake is approximately 23.8 feet.

5.8A.1.4 Critical or Priority Habitat and Species Use

The Columbia white-tailed deer is federally listed as endangered and were recently translocated to the Ridgefield NWR; this species is now present in the Carty Unit. Other federally designated species are not known to occur in Carty Lake or its shoreline. Federally-listed anadromous fish species are not likely to utilize Carty Lake for spawning or rearing habitat due to a lack of consistent surface water connection with Gee Creek, Lake River and the Columbia River System. Fish in the lake include primarily warm water species such as carp and large-scale sucker, which have negatively affected water quality and aquatic plants.

Numerous state priority habitats and species are documented in the vicinity of Carty Lake. As part of the Ridgefield lowlands, the Carty Lake shoreline area supports wintering concentrations of Canada geese, Sandhill crane, tundra swan, white fronted geese and dabbling duck. This area also supports nesting habitat for a variety of duck species. The lake contains Washington Department of Fish and Wildlife (WDFW) priority-designated palustrine wetland habitat and Oregon white oak woodland priority habitat occurs to the east and north of the lake.

5.8A.1.5 Instream and Riparian Habitats

The National Wetlands Inventory classifies Carty Lake a lacustrine, limentic, unconsolidated bottom wetland habitat. Aquatic plants, including native wapato occur in the lake, and the fringe wetland is dominated by nonnative, invasive reed canary grass (ELS, 2013). Much of the Carty Lake shoreline is in agricultural use with mowing and other treatment as part of the NWR. Himalayan blackberry is dominant along the bulkhead that separates the Carty Unit and the Port property.

5.8A.1.6 Water Quality

Carty Lake is not listed on the current Ecology 303(d) list for water quality impairments. However, lake sediments have been found to be contaminated as result of former Pacific Wood Treating Company operations on Port of Ridgefield property at the south end of the lake. This area is a Washington State Model Toxics Contract Act (MTCA) cleanup site contaminated with wood-treating related chemicals. Until the 1980s, chemicals from the Pacific Wood Treating Company were allowed to drain directly onto open ground. In 1986, preliminary studies indicated that contaminants such as petroleum hydrocarbons, creosote, chlorinated phenols and trace elements of arsenic, chromium, copper, dioxins and furans were identified.

Ecology and the Port of Ridgefield have been working on cleanup efforts at the southern end of Carty Lake. In 2013, Ecology released the consent decree, cleanup action plan, and remedial investigation/feasibility study for public review and comment. In November 2013, Ecology, the Port and the City of Ridgefield finalized the Consent Decree for cleanup of the site. A Draft Environmental Assessment has been prepared for the US Fish and Wildlife Service to evaluate

the proposed Carty Lake Remedial Action at the Ridgefield NWR (Maul, Foster and Alongi, 2013).

5.8A.2 Shoreline Use Patterns

5.8A.2.1 Existing Land and Shoreline Uses

Carty Lake is part of the Ridgefield NWR Carty Unit and is managed to maximize habitat for waterfowl and other wetland wildlife. The lake has limited recreational use with occasional wildlife observation and photography. Boating is not allowed. The City of Ridgefield's wastewater treatment facility is located on a small City-owned parcel on the eastern shore of Carty Lake adjacent to Port of Ridgefield property.

The Port of Ridgefield owns 40 acres of undeveloped waterfront along Lake River adjacent to Carty Lake, which is zoned for waterfront mixed use development. Pacific Wood Treating Company (PWT) was located on the Port's Lake River Industrial Site from 1964 to 1993. Historical PWT wood treatment activities impacted sediments in the southern end of Carty Lake. The Port is proposing cleanup activities in the southern end of Carty Lake to remove contaminated sediment in the southern end of Carty Lake and within its 200 foot shoreline. The proposed Carty Lake remedial action includes in-water and upland components conducted primarily on Refuge property. Cleanup is proposed to take place in the summer of 2014 and will involve mechanical sediment excavation, the placement of a clean layer of sand to manage residuals, and stabilization of a treated wood bulkhead (Ecology 2013).

5.8A.2.2 Shoreline Environment Designations and Zoning

Unincorporated portions of Carty Lake zoning and shoreline management is under the jurisdiction of Clark County. The majority of existing zoning along Carty Lake is composed of parks/open space and wildlife refuge designations. As of June 2010, the entirety of the Carty Lake shoreline had a shoreline environment designation of Rural. A summary of the zoning is shown in the following table: Table 5.8A-01

Table 5.8A-01. Carty Lake Existing Zoning (Upland)

Zoning Designation	Acreage	Percentage
Parks/Open Space/Wildlife Refuge (P/OS & P/WL)	42	55%
Water	24	31%
Open space (OS)	7	9%
Waterfront mixed use (WMU)	4	5%
Total	**77**	**100%**

Note: The Clark County Zoning data set for the designation "Water" includes both open water and upland area. The Clark County Waterbodies data set, includes only open water. This table reduced the 65 acres zoned "Water" by 41 acres to highlight only the 24 acres of upland areas.

5.8A.2.3 Existing Public Access

Carty Lake has limited public access and is used for both wildlife habitat and recreational purposes. A mowed seasonal footpath is maintained along the north end of the lake for access to Gee Creek.

5.8A.2.4 Historical and Cultural Resources

The entire Carty Lake shoreline planning area is part of the Shoto Villages-Vancouver Lakes Archaeological District which has been Determined Eligible for listing on the National Register of Historic Places. There are approximately five other recorded sites in the planning area including both historic and prehistoric sites. There is some information to suggest that one prehistoric site contains burials, however due to conflicting information, further research is needed to clarify this assertion. Clark County archaeological resource probability mapping suggests there is a significant chance of finding unknown artifacts within almost all areas of the County's shoreline planning area (Clark County 2003); the Washington State Archaeological Predictive Model characterizes the entire area as "Very High Risk" (DAHP 2014). Major remnants of the Chinookan Indian Cathlapotle village are located in the Carty Unit of the RNWR at the confluence of the Columbia River, Multnomah Channel, Lake River and Lewis River. A historic Lewis and Clark campsite known as Wapato Portage is also situated in the Carty Unit. There are no county-, state-, or federally-listed historic structures within the Carty Lake shoreline planning area (DAHP, 2010; Clark County, 2010d).

5.8A.2.5 Areas of Special Interest

The former Pacific Wood Treating Company site is an area of special interest to the state.

5.8A.3 Opportunity Areas

5.8A.3.1 Restoration

The riparian areas along the north and south shore have the potential for some riparian/wetland enhancement through increased plantings of native tree and shrub species within the riparian/wetland buffers. The lake appears to be isolated and only engaged with the Columbia River during high flow events. An opportunity may exist to increase connectivity with the Columbia River via Gee Creek or to Lake River through a constructed channel. The Gee Creek connection could provide access to Carty Lake by salmonids.

5.8A.3.2 Public Access

Because the general area around Carty Lake is primarily used for open space and wildlife refuge, preserving Carty Lake for wildlife habitat only is appropriate. The potential exists for development of a loop trail if access from the Port of Ridgefield property were available.

5.8A.4 Reach Scale Assessment

Carty Lake itself lies entirely within the Ridgefield NWR and has been evaluated as one shoreline reach. Table 5.8A-02 provides a brief description of this reach and highlights key modifications, unique features and any restoration opportunities.

Table 5.8A-02. Reach Assessment for Carty Lake

Reach Number	Reach Location	Reach Length (miles)	Land Use Descriptions	Modifications	Unique Features	Riparian Zones	Restoration Opportunities
CARTY_LK	Entire lake and shoreline	1.5 mi	Open space, habitat conservation and remediation	None apparent.	Within the Ridgefield NWR. Approximately 53 acres of wetland.	Mostly lacking forested riparian zone	Riparian/wetland enhancement Remediation of contaminated soils Reconnect with Columbia River floodplain

Citations:

Clark County. 2010d. Clark County Historic Preservation Website. Available: http://www.co.clark.wa.us/longrangeplan/historic/index.html. Accessed February 2, 2014.

DAHP (Washington State Department of Archaeology and Historic Preservation). 2010. Washington Information System for Architectural and Archaeological Records Data (WISSARD) Online Database. Accessed February 2, 2014. Available: http://www.dahp.wa.gov/pages/wissardIntro.htm.

Ecology. 2013. Cleanup action plan, former Pacific Wood Treating Co. site. Washington State Department of Ecology (Ecology). November 5, 2013.

ELS. 2013. Critical areas report for Carty Lake, Ridgefield, Washington. Ecological Land Services, Inc (ELS). Prepared on August 2, 2013.

Maul, Foster & Alongi, Inc. 2013. Draft Environmental Assessment, Proposed Carty Lake Remedial Action at Ridgefield National Wildlife Refuge; Prepared for the US Fish and Wildlife Service on December 9, 2013, 22 pp.