

## **ACKNOWLEDGMENTS**

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## INTRODUCTION

### BACKGROUND

This report is the cumulative impacts analysis for the City of Vader and its urban growth area. This plan is meant to provide a planning-level framework for understanding how and where shoreline ecological functions are anticipated to be affected by future development and whether this development will cause a net loss of shoreline functions in the City and its urban growth area.

### TIMELINE

The report has been created as part of the Shoreline Master Program and is included in Phase 4 of the overall update. A timeline for the complete Shoreline Master Program update is shown below:

**TABLE 1**

**Timeline for the Shoreline Master Program Update for the City of Vader**

<b>Phase</b>	<b>Update Schedule</b>	<b>Timeline</b>
1	<ul style="list-style-type: none"><li>• Prepare Jurisdiction Maps</li><li>• Prepare a Public Participation Plan</li></ul>	Fall 2012
2	<ul style="list-style-type: none"><li>• Analyze and characterize shoreline conditions</li></ul>	Winter 2012
3	<ul style="list-style-type: none"><li>• Complete Draft Shoreline Master Program Update</li><li>• Complete Cumulative Impact Analysis Report</li></ul>	Spring 2013
4	<ul style="list-style-type: none"><li>• Complete Draft Restoration plan and Implementation Strategy</li><li>• Complete No Net Loss Report</li></ul>	Winter 2013 Spring 2014
5	<ul style="list-style-type: none"><li>• Conduct public hearings</li><li>• Planning Commission Recommendation</li><li>• City Council Action</li></ul>	Spring- Summer 2014
6	<ul style="list-style-type: none"><li>• Ecology Review</li><li>• Ecology Action</li><li>• Final Adoption by Ecology and the City Council</li></ul>	Spring- Summer 2014

### PURPOSE AND SCOPE OF PLAN

This document has been prepared to comply with the state's Shoreline Master Program (SMP) guidelines for cumulative impact analyses (WAC 173-26-201(2)). The guidelines are meant to ensure that SMP updates include shoreline policies and regulations that ensure that future development will cause no net loss of shoreline ecological functions in the shoreline environment. The concept of cumulative impacts and no net loss from the SMA is depicted within Figure 1.

## Cumulative Impacts and No Net Loss of Shoreline Ecological Functions

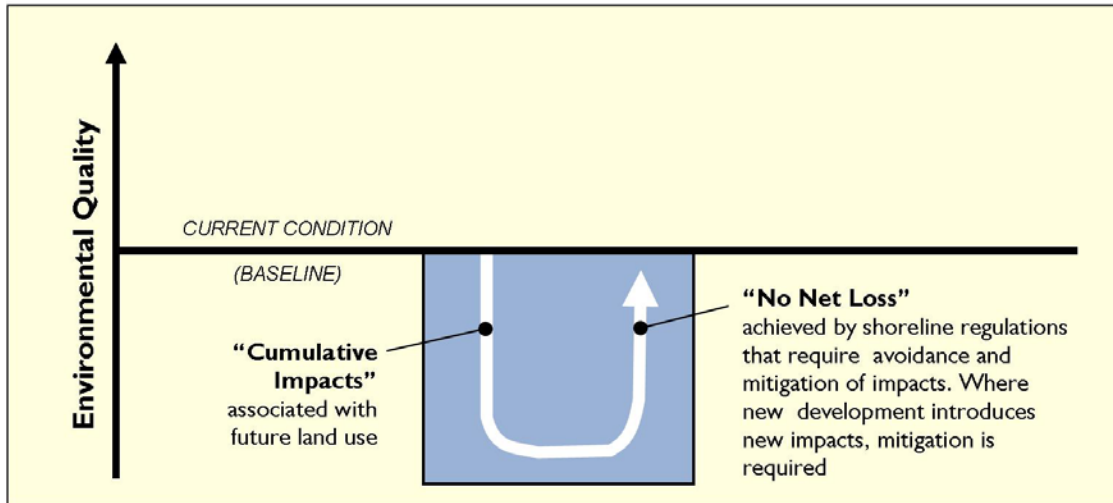


FIGURE 1

### Conceptual View of Cumulative Impacts and No Net Loss

This cumulative impact analysis describes the anticipated shoreline development within the City of Vader over time and assesses the total collective impacts of such development on future shoreline ecological functions. This analysis is a key step in forecasting the future and proactively dealing with potential impacts to shoreline functions. The SMP guidelines recommend that the analysis consider:

- Current circumstances affecting the shorelines and relevant natural processes;
- Reasonably foreseeable future development and use of the shoreline; and
- Beneficial effects of any established regulatory programs under other local, state, and federal laws.

Further, as part of this analysis, the Shoreline Management Act directs master programs to “include policies and regulations designed to achieve no net loss of those ecological functions” (WAC 173-26-186). This protection of shoreline ecological functions, according to the guidelines that implement the act, is accomplished through the following:

- Meaningful understanding of current shoreline ecological conditions;

- Regulations and mitigation standards that ensure that permitted developments do not cause net loss of ecological functions;
- Regulations that ensure exempt developments do not result in net loss of ecological functions;
- Goals and policies for restoring ecologically impaired shorelines;
- Regulations and programs that fairly allocate the burden of mitigating cumulative impacts among development opportunities; and
- Incentives and voluntary measures designed to restore and protect ecological functions.

## **METHODS AND SOURCES OF INFORMATION**

To determine whether the Vader Shoreline Master Program has achieved this standard of no net loss of shoreline functions, this document has considered:

- Existing development within the shoreline environment;
- Allowed development under the Shoreline Master Program;
- Foreseeable development within the City and the potential impacts of this development on the shoreline environment;
- The effect of the proposed Shoreline Master Program and other regulations on these potential impacts; and
- Whether the regulations will ensure no net loss of shoreline ecological functions.

## **EXISTING LAND USE WITHIN THE VADER SHORELINE ENVIRONMENT**

Existing land uses within the segments of the Olequa Creek that are located in Vader are detailed within the *Shoreline Inventory and Characterization - Shoreline Master Program Update for Vader* (2013). This section largely duplicates the information from the inventory, but presents the information in a slightly modified version for this report.

**Olequa Creek Shoreline:** The Olequa Creek shoreline assessment area is a 43 acre area with 6,900 feet of shoreline within the City of Vader corporate limits. Wetland areas are limited to the southern area adjacent to the wastewater treatment plant and the BNSF railroad tracks. The flood plain area associated with Olequa Creek is typically no more

than 100 feet from the ordinary high water mark (OHWM) and is fully contained within the 200 foot buffer used to establish the shoreline area.

The area contains 4 commercial parcels, 2 parcels zoned commercial/mixed use, 2 parcels zoned commercial services (City owned) and 11 residential parcels. There are 4 undeveloped parcels south of SR 506 that are zoned industrial, and several undeveloped parcels to the north of SR 506 that are zoned residential, totaling 18 acres of privately owned undeveloped properties located within the shoreline area.

**TABLE 2**

**EXISTING SHORELINE DEVELOPMENT CHARACTERISTICS**

<b>Vader: Olequa Creek Shoreline</b>	<b>Acreege</b>	<b>Total Number of Lots Subject to SMP</b>	<b>Total Number of Buildings on Lots Subject to SMP</b>	<b>Total Number of Buildings Located within the Shoreline Environment</b>
Industrial	29	5	1	1
Commercial/Mixed Use	8	2	5	3
Residential	19	11	6	2

## **ALLOWED LAND USE WITHIN THE VADER SHORELINE ENVIRONMENT**

Recognizing these existing conditions, the Shoreline Master Program has established two Shoreline Designations for the City of Vader: Urban Conservancy and Aquatic. The Urban Conservancy designation has been crafted to recognize the relatively undeveloped nature of the existing shorelines within Vader, the High Intensity designation applies to those shoreline areas outside of the 200 foot buffer from the Ordinary High Water Mark (OHWM) and the aquatic designation applies to those portions of the Olequa Creek that are waterward of the OHWM.

These designations generally allow different land uses and are subject to different land use regulations. A list of the uses and activities that are allowed within the shoreline designations is presented in Table 4 and a list of required development standards for the designations is provided in Table 5. Additional use standards applicable to each of these uses and activities can be found in Section 7 of the Shoreline Master Program.

Recognizing these existing conditions, the Shoreline Master Program has established two Shoreline Designations for the City of Vader: Urban Conservancy and Aquatic. The Urban Conservancy designation has been crafted to recognize the predominant residential nature of the existing shorelines within Vader and the aquatic designation applies to those portions of the Olequa Creek that are waterward of the ordinary high water mark.



**TABLE 3**

**ALLOWED USES AND ACTIVITIES WITHIN THE SHORELINE ENVIRONMENT DESIGNATIONS**

<b>USES &amp; ACTIVITIES</b>	<b>Urban Conservancy</b>	<b>Aquatic</b>
<b>Agriculture</b>	P	NA
<b>Aquaculture</b>	X	X
<b>Boating Facilities</b>	X	X
<b>Commercial</b>	C <sup>1</sup> / P <sup>2</sup>	X
<b>Forest Practices</b>	X	X
<b>Industrial</b>	C <sup>1</sup> / P <sup>2</sup>	X
<b>Mining</b>	X	X
<b>Recreation</b>	C <sup>1</sup> / P <sup>2</sup>	C
<b>Residential</b> • Single-Family	C <sup>1</sup> / P <sup>2</sup>	X
<b>Solid Waste Disposal</b>	X	X
<b>Transportation</b> • Roads and Railroads • Shared Use Path	C <sup>1</sup> / P <sup>2</sup> P	C C
<b>Utilities</b>	C <sup>1</sup> / P <sup>2</sup>	C

- P = Permitted Use; Use may require Substantial Development Permit or statement of exemption approval  
 C = Requires a Shoreline Conditional Use Permit  
 X = Prohibited; not eligible for a Substantial Development Permit or Shoreline Conditional Use Permit  
 NA = Not applicable.
- 1 = Within two hundred (200) feet from the ordinary high water mark  
 2 = Beyond two hundred (200) feet from the ordinary high water mark

**TABLE 4**

**Regulations within the Shoreline Environment Designations**

<b>REGULATIONS</b>	<b>Urban Conservancy</b>	<b>Aquatic</b>
<b>Agriculture</b> OHWM setback Building height	* 35'	NA NA
<b>Mining</b> OHWM setback Building Height	* 25'	NA NA
<b>Recreation Development</b> OHWM setback Building Height	* 25'	NA NA
<b>Residential/Commercial Development</b> <b>Single-Family Dwellings</b> OHWM setback Maximum Density Building Height Maximum Impervious Surfaces	* Per Zoning 35' 30%	NA NA NA NA
<b>Transportation</b> <b>Roads and Railroads</b> OHWM setback <b>Trails/Shared Use Paths</b> OHWM setback	* *	NA NA
<b>Utilities</b> OHWM setback Building height	* 35'	NA NA

\* = Use must be located outside of the 200 foot buffer from OHWM.  
 OHWM = Ordinary high water mark  
 NA = Not applicable.

In addition to these requirements, shoreline modifications are also allowed within the shoreline environment. Standards for these modifications are listed within Table 5 and supplemented by the policies and regulations within Section 8 of the Shoreline Master Program.

**TABLE 5**

**Shoreline Modifications by Shoreline Environment Designation**

<b>SHORELINE MODIFICATIONS</b>	<b>Urban Conservancy</b>	<b>Aquatic</b>
<b>Dredging</b>	NA	C
<b>Fill</b>		
• Ecological Restoration Project	P	P
• All Other Activities	C	C
<b>Shoreline Stabilization</b>		
• Restoration and Enhancement	P	P
• Bioengineering	P	C
• Revetment and Gabion	C	C
• Bulkhead	C	C
• Dike, Levee, and Instream Structure	C	C

P = Modification may require Substantial Development Permit or statement of exception approval.  
 C = Requires a Shoreline Conditional Use Permit.  
 NA = Not applicable.

**FORESEEABLE DEVELOPMENT**

Given these types of development that are allowed within the Shoreline Master Program, as well as the existing character of the shoreline within the Vader, the following amount of development is anticipated. This amount of foreseeable development has been derived from the following sources:

- The City of Vader Comprehensive Plan and Critical Areas Ordinance.

**TABLE 6**

**Foreseeable Development for the Shoreline Environment – Olequa Creek**

<b>Shoreline Segment</b>	<b>Proposed Designation</b>	<b>Foreseeable Development</b>
Olequa Creek Shoreline	Urban Conservancy within 200 foot buffer from OHWM	Single-family, commercial/mixed use and industrial development primarily on existing lots. Additionally, public access points to the river.

With this anticipated level of development, some impacts will occur to the shoreline environment. However, the Shoreline Master Program has been designed to mitigate any potential environmental impacts that may occur. Tables 7 through 12 contain an analysis

of the potential impacts that a development may have, proposed measures to mitigate the potential impact provided within the Shoreline Master Program, and the cumulative impacts of several developments given the proposed SMP is adopted.

**TABLE 7**

**Commercial/Industrial Development on Existing Lots**

<b>Foreseeable Development</b>	<b>Potential Impact</b>	<b>Mitigation</b>	<b>Cumulative Impact</b>
Commercial/Industrial Development within and adjacent to Olequa Creek Shoreline	Removal of riparian vegetation and addition of impervious surfaces within the 200-foot buffer from OHWM.	All commercial/industrial development must comply with the Critical Areas Ordinance and regulations as adopted within the Shoreline Master Program. Development must not remove more than 15% of existing riparian vegetation or exceed 30% impervious surfaces	No net loss in ecological functions is anticipated.

**TABLE 8**

**Single-Family Development on Existing Lots**

<b>Foreseeable Development</b>	<b>Potential Impact</b>	<b>Mitigation</b>	<b>Cumulative Impact</b>
Residential Development within and adjacent to Olequa Creek Shoreline	Removal of riparian vegetation and addition of impervious surfaces within the 200-foot buffer from OHWM.	All residential development must comply with the Critical Areas Ordinance and regulations as adopted within the Shoreline Master Program. Development must not remove more than 15% of existing riparian vegetation or exceed 30% impervious surfaces.	No net loss in ecological functions is anticipated.

**TABLE 9**

**Single-Family Units on Lots Created Through a Subdivision Process**

<b>Foreseeable Development</b>	<b>Potential Impact</b>	<b>Mitigation</b>	<b>Cumulative Impact</b>
Residential Development within and adjacent to the Olequa Creek Shoreline	Removal of riparian vegetation and addition of impervious surfaces within the 200-foot buffer from OHWM.	All residential development shall not allow structural shoreline stabilization, improvements within critical buffer areas, significant vegetation removal that adversely impacts ecological functions, activities causing significant erosion, reduction in slope stability or increased flood hazard or erosion in the new development or to other properties.	No net loss in ecological functions is anticipated.

**TABLE 10**

**Transportation**

<b>Foreseeable Development</b>	<b>Potential Impact</b>	<b>Mitigation</b>	<b>Cumulative Impact</b>
Roads and Parking Associated with Development within and adjacent to the Olequa Creek Shoreline	New roadways and parking lots have the potential to increase pervious surfaces and stormwater runoff into Olequa Creek, and could affect habitat, depending on the placement of the facility.	Transportation infrastructure within the shoreline environment is expected to be controlled by the standards within the Critical Areas Ordinance and regulations as adopted within the Shoreline Master Program.	No net loss in ecological functions is anticipated.

**TABLE 11**

**Utilities**

<b>Foreseeable Development</b>	<b>Potential Impact</b>	<b>Mitigation</b>	<b>Cumulative Impact</b>
Utility installations associated with Development within and adjacent to the Olequa Creek Shoreline	Utility installations have the potential to affect habitat quality and sediment generation.	All utilities must be designed and located to assure no net loss of shoreline ecological functions, preserve the natural landscape and minimize conflicts with planned land and shoreline uses.	No net loss in ecological functions is anticipated.

**TABLE 12**

**Public Access**

<b>Foreseeable Development</b>	<b>Potential Impact</b>	<b>Mitigation</b>	<b>Cumulative Impact</b>
Public Access within and adjacent to the Olequa Creek Shoreline	Public Access to the Olequa Creek may adversely impact the environmental functions of shoreline areas through the destruction of habitat and the delivery and transport of sediment, among other items.	Public access points and recreational facilities are to be designed to minimize the impact on shoreline functions, in part by being buffered from sensitive ecological features and providing limited and controlled access to sensitive features and the water's edge where appropriate.	No net loss in ecological functions is anticipated.

**POTENTIAL BENEFITS OF OTHER REGULATIONS**

In addition to the *Proposed Shoreline Master Program*, other state and federal regulations apply to Vader's shoreline jurisdiction. These state and federal regulations include, but are not limited to: the Endangered Species Act (ESA), which seeks to protect and recover federally listed endangered species; the Clean Water Act (CWA), which seeks to protect water quality and regulate the excavation and dredging of rivers; Hydraulic Project Approval (HPA), which regulates projects that change waters of the

state and affect fish habitat; and the National Pollution Discharge and Elimination System (NPDES) which regulates discharges into surface waters.

Additionally, the State Environmental Protection Act (SEPA) requires an assessment of environmental impacts for projects or a jurisdiction's legislative actions that are subject to the act, and this review is intended to provide a list of possible environmental impacts that may occur as a result of a project or a change in policy. This SEPA process helps identify potential impacts that may need to be mitigated or conditioned as result of a proposal, and could ultimately result in the denial of a project.

Taken together, these additional federal and state regulations will further ensure that there is no net loss of shoreline ecological functions along Olequa Creek within the City of Vader.

## **SUMMARY**

Considering current conditions, the regulatory framework, and the foreseeable development along shorelines, it is anticipated that there will be no net loss of ecological functions under the *Proposed Shoreline Master Program for the City of Vader* (2013). Foreseeable development within the Vader shoreline environment will include some commercial development, and the creation of amenities and facilities to support this development. The regulations within the Shoreline Master Program will ensure that these future potential developments will be mitigated in a manner commensurate with the impacts expected from each of the future developments.

## **RESOURCES**

City of Vader, 2005 Comprehensive Plan