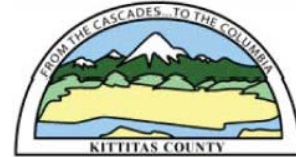


KITTITAS COUNTY SHORELINE MASTER PROGRAM UPDATE – CUMULATIVE IMPACTS ANALYSIS

Ecology Grant No. G1200054



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CHAPTER 1. INTRODUCTION

1.1 Purpose of the Report

Kittitas County is updating its Shoreline Master Program (SMP) in accordance with the Shoreline Management Act (SMA) and implementing regulations¹. As part of this SMP Update effort, the County is required to evaluate the cumulative impacts of “reasonably foreseeable future development” to verify that proposed policies and regulations for shoreline management are adequate to ensure “no net loss” of shoreline ecological functions. The Washington Administrative Code (WAC) 173-26-186(8) directs that master programs “include policies and regulations designed to achieve no net loss of those ecological functions.” The proposed Kittitas County Final Draft SMP (dated January 2014) provides standards and procedures to review, through established permitting processes, subsequent use or development proposals for their potential to impact shoreline resources. The purpose of this report is to assess the cumulative impacts that would result from development and activities in the shoreline over time under the provisions contained in the County’s Final Draft SMP. This report is prepared as a requirement of the Kittitas County grant agreement with the state funding agency, Washington Department of Ecology (SMA Grant No. G1200054). This report is based upon guidance provided in Ecology’s SMP Handbook (accessed at: <http://www.ecy.wa.gov/programs/sea/shorelines/smp/handbook/index.html>), specifically Chapter 4 – No Net Loss of Shoreline Ecological Functions and Chapter 17 – Cumulative Impacts Analysis (CIA).

The cumulative impacts to be addressed in this report are those expected to result from future development and uses within the SMA shoreline jurisdiction and regulated by the Final Draft SMP (January 2014). Cumulative impacts that may result from development outside the shoreline jurisdiction are not considered in this report.

This analysis will need to be revised if substantial revisions are made to the policies and regulations proposed in the Kittitas County Final Draft SMP.

1.2 State Requirements

According to the state shoreline guidelines outlined in WAC 173-26, Part III, Kittitas County is required to evaluate and consider cumulative impacts of “reasonably foreseeable future development” on the shorelines of the state as follows²:

To ensure no net loss of ecological functions and protection of other shoreline functions and/or uses, master programs shall contain policies, programs, and regulations that

¹ RCW 90.58 and WAC 173-26

² WAC 173-26-186(8)(d))

address adverse cumulative impacts and fairly allocate the burden of addressing cumulative impacts among development opportunities. Evaluation of such cumulative impacts should consider:

- Assessment of current shoreline conditions;
- Reasonably foreseeable future development and use of the shoreline; and
- Beneficial effects of any established regulatory programs under other local, state, and federal laws.

This CIA uses these three considerations as a framework for evaluating the potential long-term impacts on shoreline ecological functions and processes that may result from development or activities under the proposed Final Draft SMP over a 20-year time frame for consistency with local government Growth Management Act comprehensive plans.

1.3 Report Contents and Methodology

This report provides a planning-level assessment of the potential cumulative impacts that can be expected to occur if the proposed Final Draft SMP is adopted and implemented. The assessment is limited to cumulative impacts of reasonably foreseeable future development in areas subject to SMA jurisdiction. There are approximately 680 miles of regulated stream and lake shorelines in Kittitas County.

The shoreline guidelines state that the impacts of “commonly occurring and planned development” should be assessed programmatically “without reliance on an individualized cumulative impacts analysis.” In contrast, developments that have unforeseen or uncommon impacts, which cannot be reasonably identified at the time of SMP development should be evaluated via the shoreline substantial development and/or conditional use permit processes to ensure that all impacts are addressed and that there is no net loss of ecological function after mitigation³. In addition, the guidelines require evaluation of the cumulative effects caused by:

- Unregulated activities (i.e., timber harvest and certain agricultural uses);
- Developments that are exempt from a shoreline substantial development permit (e.g., single-family residential development); and
- Residential bulkheads, residential piers, and runoff from newly developed properties.

Accordingly, this analysis is focused on those uses or developments that have the greatest potential for adverse impacts when considered collectively over a 20-year planning

³ WAC 173-26-201(3)(d)(iii)

horizon. In Kittitas County, this primarily involves residential development. Some types of development that are addressed in the SMP, such as signs, dredging, and utilities, are not analyzed in detail because of their limited size and effect on shoreline ecological functions or because they will be assessed through the conditional use permit process.

The objective of this analysis is to evaluate whether commonly occurring shoreline uses and developments within the County will result in cumulative impacts to shoreline ecological functions. The analysis assists in determining whether the Final Draft SMP will result in a *net* loss of shoreline ecological functions compared to 'baseline' conditions. No net loss means that impacts may occur, but adequate measures are in place within the overall shoreline program to mitigate them such that the post development conditions are no worse *overall* than pre-development conditions. For this analysis, the baseline conditions are the conditions that are generally identified and described in the Shoreline Inventory and Characterization Report (ICR) (ESA, 2013a).

Standards and procedures are at the core of any SMP. These are essential for evaluating the effects of specific development actions on a case-by-case basis at the time individual shoreline development proposals are reviewed. These project-level analyses will allow site-scale factors to be considered in the assessment of baseline conditions to supplement the inventory information available for the County. To achieve no net loss, the SMP requires each project to mitigate impacts by avoiding, then minimizing adverse effects, then replacing impacted resources through compensatory mitigation efforts. The SMP requires that avoidance, minimization and compensatory mitigation be employed at the project scale to ensure no net loss of ecological functions on a site-by-site basis.

This analysis has a series of tables that cite specific provisions in the Kittitas County Final Draft SMP (per Section 1.1 date above) and the Draft Restoration Plan (ESA, 2013b) that have the potential to affect shoreline ecological functions (see Appendix A). The tables provide overviews of: 1) current conditions; 2) likely future changes; 3) ecological functions at risk; 4) the effects of proposed SMP provisions; and 5) expected future performance. Only areas that have foreseeable development potential are included in the analysis. Additional descriptions of the contents of Appendix A are included in the following section describing the CIA methodology.

1.3.1 Methodology

Assessing whether the Kittitas County Final Draft SMP would result in cumulative impacts over time requires a multi-step process:

Step 1: Identify existing shoreline ecological functions.

The concept of ecological functions recognizes that any ecological system is composed of a wide variety of interacting physical, chemical and biological components, that are interdependent in varying degrees and scales, and that produce the landscape and habitats as they exist at any time. Ecological functions are the work performed or role played individually or collectively within ecosystems by these components (WAC 173-26-201).

Existing ecological functions in the county are documented by waterbody and by shoreline segments or reaches per the ICR (ESA, 2013a) and are detailed in the reach-specific tables in Appendix A. Only reaches with development potential are included in Appendix A.

Step 2: Determine reasonably foreseeable future development. A parcel-based lands analysis was conducted to identify the approximate number of vacant (undeveloped) parcels and parcels with the potential to subdivide. This analysis considers the maximum number of new residential dwelling units assuming full build-out as allowed by the applicable zoning district, based upon the County zoning map adopted February 2013. A qualitative assessment of industrial and commercial development was also conducted. Future development is described in Chapter 3, and reach-specific data is included in Appendix A. Additional information on the methodology used in this step is included in Appendix B.

Step 3: Determine potential impacts associated with foreseeable development. This step examines the potential impacts that could result from the amount of development likely to occur along County shorelines, as described in Chapter 3 and the reach-specific tables in Appendix A.

Step 4: Determine ecological functions at risk. Step 4 compares current conditions and reasonably foreseeable future development to determine ecological functions at risk. Ecological functions at risk are grouped into categories of water quality, habitat, and hydrology. The categories are consistent with WAC 173-26-201(3)(d)(i)(C). A summary of ecological functions at risk is included in Chapter 3, and reach-specific information is presented in Appendix A.

Step 5: Determine how impacts will be adequately avoided or mitigated. This step describes the regulations in the Final Draft SMP that would serve to mitigate potential impacts associated with foreseeable development, with a particular focus on ecological functions at risk. Four questions guided this analysis:

- Are the proposed Shoreline Environment Designations (SEDs) protective of existing ecological functions?
- Are the allowed and conditionally allowed uses appropriate for each SED?
- Are the shoreline buffers, setbacks and critical area buffers protective of existing ecological functions?
- What other regulations in the SMP serve to protect ecological functions at risk and are they adequate to address all potential impacts?

Step 6: Evaluate incremental impacts. This analysis addresses incremental impacts anticipated from development and other activities in the shoreline after mitigation is applied. Even with mitigation, development can cause impacts to shoreline functions which cumulatively could have adverse impacts. According to Ecology's SMP Handbook (Ecology, 2010), restoration activities included in the Shoreline Restoration Plan should be

considered in determining whether the SMP will prevent cumulative impacts and achieve no net loss. Based upon the draft Shoreline Restoration Plan (ESA, 2013b), restoration measures are identified for each waterbody in Appendix A and were considered when determining the overall impact of foreseeable development on existing shoreline ecological functions.

Step 6: Describe beneficial effects. Various existing local, state and federal plans and programs were reviewed to determine if ecological functions and processes would be restored or improved when new development occurs.

Step 7: Explain how the SMP will deal with unanticipated impacts. The final step describes uses and developments that may have unanticipated or uncommon impacts (e.g. illegal activities) within the shoreline and how the SMP will address such impacts, such as through site-specific analysis or the conditional use permit process. These impacts were considered throughout the development of the updated Final Draft SMP and will continue to be considered with implementation of the SMP during the shoreline permit review process.

CHAPTER 2. SUMMARY OF EXISTING SHORELINE CONDITIONS

Kittitas County extends from the top of the Cascade Mountains to the Columbia River and is characterized by forested headwaters, agricultural lowlands, arid shrub-steppe and scablands. The County spans over three major basins with the majority (78 percent) occurring within the Upper Yakima Basin, which drains to the Yakima River, and the remaining occurring within the Little Naches River Basin and Columbia River Basin. There are approximately 680 miles of shoreline in Kittitas County subject to the SMA, which includes shorelines along 51 streams and 44 lakes and ponds. The streams and lakes occur on a mix of federal, state, and private land zoned for a variety of uses including agriculture, forest and range, rural and low-density residential, and very limited light industrial and commercial. Shorelines of Statewide Significance within the County include all or portions of the following waterbodies:

- Cle Elum River
- Columbia River
- Kachess River
- Little Naches River
- Teanaway River
- Wilson Creek
- Yakima River
- Priest Rapids Dam Reservoir
- Wanapum Dam Reservoir
- Cle Elum Lake
- Keechelus Lake
- Kachess Lake

Shorelines of Statewide Significance are defined as rivers where the mean annual flow is measured at 1,000 cubic feet per second or more and lakes with a surface acreage of 1,000 acres or more measured at the ordinary high water mark. The SMA establishes the following use preference for Shorelines of Statewide Significance:

The legislature declares that the interest of all of the people shall be paramount in the management of shorelines of statewide significance. The department, in adopting guidelines for shorelines of statewide significance, and local government, in developing master programs for shorelines of statewide significance, shall give preference to uses in the following order of preference which:

- *Recognize and protect the statewide interest over local interest;*
- *Preserve the natural character of the shoreline;*
- *Result in long term over short term benefit;*

- *Protect the resources and ecology of the shoreline;*
- *Increase public access to publicly owned areas of the shorelines;*
- *Increase recreational opportunities for the public in the shoreline;*
- *Provide for any other element as defined in RCW 90.58.100 deemed appropriate or necessary (RCW 90.58.020).*

Overall, Kittitas County retains a substantial amount of forest cover while impervious surface cover is relatively low. As of 2006, impervious surface covered approximately 1.2 percent of the Upper Yakima basin, increasing by 0.02 percent since 2001 (MRLC, 2011). Population in the County is generally low density with most residing in the Upper Yakima Basin where the two main population centers occur, Cle Elum and Ellensburg. The Little Naches River Basin is unpopulated and the Columbia River Basin has approximately 192 residents. Despite the low population, there are areas of concentrated development in the Kittitas Valley where the effects of riparian clearing, floodplain modification and fill, hydrologic alteration and diversion, road building, and other development activities are evident. These activities have affected water flow patterns, in stream habitat development, water quality and other ecological functions and have altered the abundance, diversity, distribution, and movement of fish and wildlife species to a noticeable degree. Many of these changes are most pronounced near rivers and tributary streams where the majority of the County's residents live.

The following sections describe the current ecological conditions and land uses within the three basins: Yakima River, Little Naches River, and Columbia River. Due to its size and heterogeneity, the Yakima River Basin is separated into three geographic areas: Upper County, Kittitas Valley, and Yakima Canyon. Additional detailed information on shoreline conditions is found in the ICR (ESA, 2013a).

2.1 Yakima River Basin—Upper County

Shorelines in Upper County include the upper Yakima River and its tributaries from the Yakima River headwaters to the Taneum Creek confluence. There are 35 streams and 29 lakes and ponds within the Upper County area that are considered shorelines of the state. Land cover is a mix of forest, shrub-steppe, agriculture, and developed land.

The majority of the area is characterized by undeveloped forest and three large glacially-formed lakes, Keechelus Lake, Lake Kachess, and Lake Cle Elum that have been converted to reservoirs to regulate the flow of the Yakima River and part of the Cle Elum River. The three reservoirs are situated on mostly National Forest Land or private lands used for forestry and limited residential land use is present. The reservoirs provide habitat for several priority fish species, but are managed as irrigation reservoirs and have listed water quality impairments such as elevated temperature. The dams associated with each reservoir are barriers to fish passage to upstream tributaries, although a temporary fish passage structure has recently been installed at Lake Cle Elum Dam. The reservoirs are set

among large, unfragmented blocks of habitat for spotted owl, elk, mountain goat and other wildlife species. The shoreline of the reservoirs contains roads and a limited amount of residential development, both of which encroach on existing riparian vegetation. Multiple overwater structures are located along the western shoreline of Lake Kachess.

Each reservoir is fed by numerous tributaries that flow through the Cascade Mountains and, in some areas, the Alpine Lakes Wilderness. High mountain lakes also provide sources of hydrology to the reservoirs. The tributary streams and lakes are located primarily on commercial forest-zoned lands (both private and National Forest) with only limited residential development and zoning.

Within Upper County, the upper Yakima River flows approximately 44 miles from the Keechelus Lake to the Taneum Creek confluence. There are several large tributaries along this section of the Yakima, including: Kachess River, Cle Elum River, Teanaway River, Swauk Creek, Cabin Creek, Big Creek, and Little Creek. In addition, the Yakima River flows through the cities of Cle Elum and South Cle Elum.

The upper Yakima River flows from forested slopes and foothills of the eastern Cascades down to arid shrub-steppe habitats. Between Keechelus and Easton Dams, the river floodplain function is high with a braided, meandering channel and numerous side channels. Below Easton Dam, the floodplain contains residential development and eventually becomes one large main channel and relatively confined as it flows through the Ellensburg Canyon. The dam at Lake Easton has a fish ladder that allows passage in winter and spring although upper Yakima basin fish populations have declined due to historic damming, irrigation operations and diversions, and land development. High summer flows and low winter flows, as a result of the “flip-flop” irrigation operation, affect both juvenile salmonid rearing and overwintering habitats. The flip-flop irrigation operation refers to release of water from the Upper Yakima reservoirs to supply irrigation during summer months while water is held back in the Naches basin reservoirs. In September, when the Upper Yakima reservoirs are low, the operation flips to the Naches basin and water is released from Rimrock and Bumping reservoirs. The purpose of flip-flop is to encourage returning Chinook salmon to spawn at lower river stages in the fall, ensuring that the flows needed to keep redds watered are upheld, while still low enough to protect them during their incubation period (November through March) (LeMoine and Brock 2004).

Anadromous fisheries have improved in recent years as a result of better fisheries management, habitat and facility improvements, hatchery supplementation, and reintroduction efforts. Interstate 90 (I-90) is a major feature within and parallel to the shoreline of the upper Yakima River limiting floodplain function in terms of connectivity with the main channel and periodic flooding.

The Kachess River flows from Kachess Lake and into Lake Easton, which also receives flow from the Yakima River. The shoreline is primarily forested with a small residential community located on the right bank of the Kachess River north of I-90 and recreational parkland around Lake Easton. The riparian zone of the lake is constricted on three sides by roadways.

Big and Little Creeks are right-bank tributaries of the Yakima River. Both streams originate in dense forest and flow through narrow valleys with steep slopes before reaching the valley bottom where agricultural land uses are dominant. Dams and unscreened irrigation diversions are present in the lower reaches that inhibit fish use and cause elevated temperatures and a low instream flow during the summer months.

The Lower Cle Elum River is a left-bank tributary to the Yakima River and flows between Cle Elum Lake and just south of I-90. The river is a large channel with multiple large side-channel complexes. It is considered a high-density salmon spawning area; in most years half of the Chinook salmon redds in the upper Yakima River watershed are found immediately upstream and downstream of the confluence of the Cle Elum and Yakima Rivers (Haring 2001). Wetland habitat is mapped throughout the reach and elk wintering habitat is present. The shoreline along half of this reach (~5 miles) contains residential development and golf courses associated with the Suncadia development. Some areas of vegetation alteration exist, but the majority of the shoreline consists of dense riparian forest and shrub habitat.

The Teanaway River is a left-bank tributary of the Yakima River that contains three major tributaries: the North, Middle, and West Forks. The tributaries traverse among steep slopes of the eastern Cascades before joining the mainstem of the river. The upper watershed is mapped as critical habitat for northern spotted owl and contains habitat for other priority bird species. The mainstem, Middle and West Forks experience low flows and associated high water temperatures during the summer and fall, partially the result of multiple stream diversions for agricultural use. The mainstem has been largely disconnected from its floodplain since the late 1800s. Human alterations have impacted river system processes: ponds and wetlands have been drained and side channels filled; the river has been straightened and levees were constructed; and channels have been confined and consolidated. Beaver populations have been reduced so there are fewer dams to retain and disperse flows. Downstream of the confluence of the three forks, the river has been moved to the edge of the valley, channelized, and armored to facilitate agricultural activities (Haring 2001). Habitat for priority fish species is present although the river was historically used to transport timber which caused the removal of large woody debris and scoured the streambed reducing the number of pools and other in-channel rearing habitats. Today, riparian vegetation is hampered by reinforcement of streambank to protect roads and property.

Swauk Creek is a left-bank tributary of the Yakima River that originates in dense forest and flows through an arid canyon at its downstream end. It has a naturally defined stream corridor that has been affected by road construction and mining. Priority fish species are present although past activities have reduced stream complexity, summer flows are low to intermittent, and multiple passage barriers are present. Limited residential development is present in the lower portion of Swauk Creek.

2.2 Yakima River Basin—Kittitas Valley

Shorelines in the Kittitas Valley portion of the Yakima River Basin include the Yakima River and its tributaries between the Taneum Creek confluence and the Wilson Creek confluence. There are 12 streams and 7 lakes and ponds. In addition to the Yakima River, the major streams include Taneum, Manastash and Wilson Creeks. This portion of the County is characterized by less precipitation and higher temperature extremes. In general, the upstream portions of the major streams contain coniferous forest with open stands of ponderosa pine and some lodgepole pine. The lower reaches are characterized by semi-arid shrub-steppe and grasslands that have been converted to agricultural uses. The following paragraphs describe the current conditions of major streams and shorelines in the Kittitas Valley.

The Yakima River within the Kittitas Valley is bordered by undeveloped land zoned for forest and range, agricultural land and low-density rural residential. Land use intensifies near the City of Ellensburg although the majority of low-lying land adjacent to the river is mostly irrigated agriculture. Most of the native shrub-steppe habitat has been converted to agricultural land, which has resulted in considerable alteration and hydrologic change to the landscape. In addition, gravel mining has impacted both the structure and function of the Yakima River floodplain. Several unnamed waterbodies are found adjacent to the river that are former gravel pits excavated in the floodplain. These have altered seasonal overbank storage and riparian habitat. Priority fish species are present in the river and some of the waterbodies despite the lack of riparian vegetation, large wood, altered hydrologic regime and isolation of side channel habitats. Water quality is negatively affected by irrigation return water and untreated stormwater runoff from developed areas near Ellensburg. However, anadromous fisheries have improved in recent years as a result of better fisheries management, habitat and facility improvements, hatchery supplementation, and reintroduction efforts.

Taneum Creek is a right-bank tributary to the Yakima River that is mostly undeveloped and flanked by heavily forested areas in its North and South Forks. The lower portion of the stream traverses agricultural lands and some limited residential development. Taneum Creek provides priority fish habitat that is impaired by past logging and road construction in the upper reaches and by low instream flow and channel complexity downstream of I-90. The stream also experiences elevated temperatures, turbidity, and suspended sediments throughout. Wetlands are present along the mainstem and riparian cover is narrow and intermittent in lower reaches. The upper reach of the mainstem and the North and South Forks is mapped as spotted owl critical habitat and elk and deer wintering and calving habitat. The mainstem has the potential for channel migration and the stream has been characterized as having a large and unpredictable floodplain and flood capacity suggesting that development should be limited adjacent to the stream (Tetra Tech, 2012).

Manastash Creek is a right-bank tributary to the Yakima River located downstream of Taneum Creek. The upper portion of the stream flows through a relatively narrow valley that gives way to flat agricultural land. Residential development is adjacent to the river for over half of the mainstem while none is present along the South Fork. Manastash Creek is

fully appropriated for irrigation and a portion of the lower reach lacks surface flow during the summer months of most years. Lack of flow is attributed to irrigation and the porous substrate of the channel bed. Low instream flows and partial migration barriers limit fish use although priority species are present. Manastash Creek exhibits a large and unpredictable floodplain suggesting that adjacent development be limited (Tetra Tech 2012).

Matoon Lake is a 26-acre lake located near Ellensburg. The lake borders I-90 and has undeveloped land that is zoned for urban residential. Matoon Lake is a former gravel pit that is characterized by shallow water, undeveloped shoreline, and a lack of riparian cover due to an unpaved road that extends the perimeter of the lakeshore. WDFW annually stocks the lake with trout, but habitat has been degraded by non-native invasive aquatic vegetation.

Wilson Creek is a left-bank tributary of the Yakima River that receives flow from two streams, Naneum and Coleman Creeks that converge near I-82. This system originates north of Ellensburg although the only portion of Wilson Creek in SMA jurisdiction is south of the city limits. Land use is a mix of agriculture and low-density and rural residential with private, commercial forest land in the upper portion of Naneum Creek. Streams in the Kittitas Valley have been extensively altered to provide irrigation for crop production, resulting in channels being rerouted, channelized, and diked. The entirety of Wilson and Coleman Creeks, and approximately the lower half of Naneum Creek, flow through actively farmed lands. Some residential and commercial development, associated with farming activities, is located along the streams. The hydrology of Wilson Creek is not well known with most of the naturally occurring flow resulting from snowmelt and spring precipitation events. Water from the Yakima River is delivered via irrigation canals. Fish habitat features such as pools, large wood, and riparian cover are lacking in many areas of the system and irrigation diversions create migratory barriers. Furthermore, many stream channels have been deeply incised or dredged to drain agricultural areas. Water temperatures are elevated during the summer months and in comparison to the Yakima River, the streams contain higher nutrients, suspended sediment, and fecal coliform bacteria due to irrigation return flows, livestock, and failing septic systems. Riparian cover is still relatively intact within the forested canyons along the upper portion of Wilson, Naneum, and Coleman Creeks, and numerous wetlands are mapped along Naneum Creek. Northern spotted owls have been documented in upper Naneum Creek and mule deer wintering habitat is also mapped.

Cherry Creek is a left-bank tributary to Wilson Creek and also receives flow from Park Creek. These streams flow through agricultural lands and have been extensively altered to provide water for irrigation. Low-density residential development flanks both sides of the streams. Habitat, water quality and hydrology functions are similar to those described for the Wilson Creek system.

Fiorito Lake is a 54-acre lake located adjacent to I-82 and upstream of the confluence of Wilson and Cherry Creeks. The shoreline supports little riparian cover and a constructed berm splits the waterbody into two sections. Similar to Matoon Lake described above,

Fiorito Lake is stocked with trout but habitat has been degraded by non-native invasive aquatic vegetation.

2.3 Yakima River Basin – Yakima Canyon

The Yakima River flows approximately 21 miles through the Yakima Canyon from the Wilson Creek confluence to the Kittitas-Yakima County boundary. Over half of the land bordering the river is state and federal land and the remaining is zoned for agriculture, forest, or range. This portion of the Yakima River is relatively sinuous compared to upstream reaches of the river and flows through a steep, deep-walled canyon. There are no side-channel complexes or wetlands and only a narrow riparian corridor is present. Much of the land adjacent to the river is steep and the river has experienced large debris flows due to high intensity precipitation events. Several priority fish species are present in the river despite water quality impairments and adjacent hydromodification. Priority wildlife species in the canyon include bighorn sheep, elk, golden eagle, and mule deer and cliff/bluff habitats are mapped throughout the corridor.

Due to the geology and the presence of Canyon Road and a railroad, there is limited development potential in this portion of the shoreline. However, the river and its banks support highly used recreational areas for camping, fishing and hunting.

2.4 Little Naches River Basin

The Little Naches River is a right bank tributary to the Naches River (in Yakima County) and forms the border between Kittitas and Yakima counties. Approximately 14 miles of the river is a “shoreline of statewide significance” and forms Kittitas County’s southwestern border. Tributaries to the river include the Middle and North Forks, Bear Creek, and Quartz Creek. The river and its tributaries are located almost entirely on National Forest Lands that are undeveloped.

Coniferous forest dominates the riparian zone of Little Naches River and its tributaries, which contributes substantial woody material to the system and connects large areas of forest habitat. Several species of priority fish are present although road development and timber harvest in the watershed have had negative impacts on habitat quality namely due to erosion. The upper part of the Little Naches is considered to provide good fish habitat with abundant spawning gravel, riparian cover, adequate summer flows, and large wood. Much of the Little Naches system has the potential for channel migration although the floodplain is relatively narrow. Forested and scrub-shrub wetlands are mapped in the shoreline of the mainstem and the North Fork tributary is mapped as providing habitat for priority species including northern spotted owl and harlequin duck. Talus slopes and elk calving areas are also priority habitats in the area.

2.5 Columbia River Basin

The Columbia River flows approximately 1,243 miles from the Rocky Mountains of British Columbia to the Pacific Ocean in Astoria, Washington. A small section of the river (43

miles) forms the eastern border of Kittitas County where it is impounded behind the Wanapum Dam, one of the 14 hydroelectric dams located on the mainstem of the Columbia River. The shoreline in this section is generally undeveloped with the exception of the portion that runs along the town of Vantage. The Yakima Training Center is located within the downstream portion of the shoreline and the shoreline is zoned for parks and open space, forest, range and agriculture.

This portion of the Columbia River is located in a canyon with moderate to steep topographic relief. Although it provides habitat for a variety of priority fish species, the river at this location has several water quality impairments and is highly influenced by dam operations. Very limited wetland habitat is mapped along the river within the County boundaries. Riparian vegetation is scarce along the banks and much of the shoreline is in active agricultural production. The Wanapum and Priest Rapids dams significantly alter the hydrology and fish habitat quality of this portion of the Columbia River shoreline.

CHAPTER 3. REASONABLY FORESEEABLE FUTURE DEVELOPMENT, ECOLOGICAL FUNCTIONS AT RISK AND PROTECTIVE SMP STANDARDS

The purpose of this chapter is to identify reasonably foreseeable development for Kittitas County SMA shorelines based on County-wide population projections and a build-out analysis conducted by ESA. The chapter also describes the shoreline ecological functions most at risk from foreseeable development, based on the findings of the ICR (ESA, 2013a), and how foreseeable development would affect ecological functions. The protective provisions in the Kittitas County Final Draft SMP that would serve to mitigate potential impacts associated with foreseeable development are also described.

3.1 Reasonably Foreseeable Future Development

This section describes the population growth the County is anticipating to occur in the County and its cities and Urban Growth Areas (UGAs) based on Office of Financial Management population projections. The Kittitas County Conference of Governments (KCCOG) anticipates a 2025 population increase of 19,448 people from the 2000 population of 33,362, a 58 percent increase. The KCCOG estimated that 6,460 additional housing units would be necessary to accommodate this growth by 2025. These projections allow assessment of the type and amount of new development that could occur within shoreline jurisdiction based on underlying zoning regulations.

Of the total land area within shoreline jurisdiction, ESA determined that 69 percent is unlikely to significantly develop. This includes lands that have a low likelihood for development because of ownership/tax-exempt status (e.g. public lands such as National Forest, WDFW-managed lands, County parks) or presence of mapped critical areas that encompass the entire parcel. Most of the area with low development potential are zoned for Commercial Forest and Forest and Range. By contrast, areas that are likely to develop are zoned for primarily for residential uses. Based on underlying zoning densities, residentially zoned lands and lands within other zoning districts where residential development is allowed and likely to occur, could accommodate approximately 1,210 additional dwelling units within County shoreline jurisdiction. Although the County anticipates a significant increase in population by 2025 (along with a corresponding increase in number of dwelling units), only a fraction of the population is anticipated to be accommodated along shorelines of the state.

3.1.1 Planning for Population Growth

The Kittitas County population projections and distributions establish the growth forecasts to be used for planning purposes and the specific growth targets for each UGA. As established by the Washington Growth Management Act (RCW 43.62.035) the State of Washington Office of Financial Management (OFM) prepares 20-year growth management

planning population projections for each county planning under GMA. The OFM prepares high, medium and low forecasts for each county, with the middle range representing the most likely scenario. The County-level forecasts are reviewed and distributed among the jurisdictions in the county through a collaborative process.

As stated above under Section 3.1, the County is anticipating a 58 percent increase in population by 2025. The County broke down the population projections by city and UGA, and rural Kittitas County. Based on this breakdown, the County must plan to accommodate 9,771 people outside of city limits and UGAs by 2025. A “reserve population allocation” of 982 people was also established which refers to a population amount that the County must plan on also accommodating as part of the next Comprehensive Plan update review cycle (Kittitas County, 2013b). The existing population in rural Kittitas County is not provided in the Countywide Planning Policies; however, according to the 2010 Census, 18,063⁴ people live outside city limits (U.S. Census, 2010).

As stated in Section 3.1, the KCCOG also estimated the number of additional housing units necessary to accommodate the population increase. The 6,460 additional housing units were not broken down by city or for rural Kittitas County. The allocation of these housing units by geographic area and type will be determined by a number of factors including land availability, property ownership, land use controls and market forces. Information on potential residential development based on underlying zoning densities along County shorelines of the state is included in Section 3.1.3 below.

Kittitas County will review the population projections and corresponding need for new housing units as part of their next comprehensive plan update cycle (due in 2017). Depending on the OFM projections at that time, the rate of population increase may not be as high as 58 percent as was anticipated in 2002. For example, the 2012 OFM high projection shows a 51 percent increase in population by 2030 (OFM, 2012). This means that growth in the County may be somewhat lower than what the County is currently planning for.

3.1.2 Build-out Analysis

To assess the potential for future development within County shoreline jurisdiction, all parcels within shoreline jurisdiction were categorized as shown in Table 3-1. The analysis was based primarily upon zoning information coupled with Kittitas County Assessor's data regarding the development status of each parcel of land within the County.

⁴ 40,915 (total population in Kittitas County) minus 18,174 (Ellensburg population) minus 1,872 (Cle Elum) minus 893 (Roslyn) minus 532 (South Cle Elum) minus 1,381 (Kittitas) = 18,063.

Table 3-1. Build-out Analysis Categories and Descriptions

Cumulative Impact Analysis Category	Description
Vacant dividable (residential)	Undeveloped parcels, zoned for residential uses, with potential for subdivision based on densities allowed by the underlying zoning (e.g., a vacant 15-acre parcel in a zoning district that allows 5 acre lots)
Occupied dividable (residential)	Parcels zoned for residential uses that are developed with one dwelling, with potential for subdivision based on densities allowed by the underlying zoning (e.g., a 15-acre parcel containing one single-family home, in a zoning district that allows 5 acre lots)
Vacant non-dividable (residential)	<p>Undeveloped parcels, zoned for residential uses, with potential for new development, but not able to be subdivided based on densities allowed by the underlying zoning (e.g., an undeveloped 6-acre parcel in a zoning district that allows 5 acre lots).</p> <p>Also includes legal non-conforming (i.e., ‘grandfathered’), vacant lots in agriculture- or resource-zones that are less than 10 acres in size, and are allowed by the underlying zoning to be developed with residential uses.</p>
Commercial and Industrial	Parcels zoned for commercial or industrial uses
Resource	Parcels zoned as Commercial Forest or Forest and Range
Agricultural	Parcels zoned for agricultural uses, with lot sizes of 10 acres or greater
Ineligible	Parcels that are not likely to develop. This includes public lands such as National Forests, state parks, rights-of-way, etc. Also includes properties that appear to be entirely encumbered by mapped critical areas.
Built Out	Parcels that are fully developed pursuant to underlying zoning densities and allowed uses.

According to the build-out analysis, there is 29,172 acres of land within shoreline jurisdiction in unincorporated Kittitas County, including areas within UGAs. Table 3-2 shows the acreage and percentages of each category analyzed in the build-out analysis.

Table 3-2. Distribution of Shoreline Properties

Cumulative Impact Analysis Categories	Acres of Land in Shoreline Jurisdiction	Percentage of Total
Vacant dividable (residential)	472	2%
Occupied dividable (residential)	225	1%
Vacant non-dividable (residential)	838	3%
Commercial and Industrial	62	<1%
Resource	3,398	12%
Agricultural	3,527	12%
Ineligible	20,241	69%
Built Out	409	1%
Total properties in shoreline jurisdiction	29,172	100%

As Table 3-2 shows, a relatively small proportion of the County’s shoreline jurisdiction is likely to develop. Of the total area within shoreline jurisdiction, 69 percent is considered ineligible for development. The majority of these parcels are tax-exempt lands in public ownership (such as National Forest, WDFW-managed lands, County parks). Ineligible properties also include parcels that appear to be 100 percent encumbered by mapped critical areas. Ineligible lands are present throughout the County, but are more prevalent in the upper watersheds and along the Columbia River.

Some of these ineligible parcels or portions thereof might be developable, but the overall development potential is assumed to be very low. For example, ineligible parcels constrained by critical areas may be partially developable through variances. Also, new recreational developments could occur on publically-owned or tax-exempt lands, but

development on the majority of public lands is anticipated to be minimal, largely due to their intended purpose being reserved for open space, timber harvest, and wildlife habitat.

Agricultural and resource lands make up a sizeable percentage of the shoreline jurisdictional area. Commercial forest lands are generally located within the upper watersheds and the western portion of the County, while lands zoned for Forest and Range are generally at lower elevations. Agricultural lands are located within valley bottoms, primarily along the Yakima River.

Lands zoned for agriculture have the potential to convert to other types of use (such as residential), but this would require a Comprehensive Plan amendment approved by the County. Rezoning of agricultural and resource lands to residential uses in the County was fairly common in the recent past but is less likely to continue at the same frequency, as the County has recently significantly revised its Comprehensive Plan and zoning to comply with the Growth Management Act. In the absence of a County rezoning action, residential development is allowed on agricultural and resource lands, but only at very low densities (1 dwelling per 20 acres or greater).

Commercial and industrial lands are relatively uncommon within County shoreline jurisdiction, and are generally found within the UGAs. Commercial and industrial lands are located just west of Ellensburg city limits, south of Cle Elum along the Yakima River, along Silver Creek, and within the Vantage Limited Area of More Intense Rural Development (LAMIRD). Vacant commercial and industrial lands are expected to develop in the future, and underutilized commercial and industrial lands may redevelop.

Lands that are built out are located primarily along the Yakima River and the lower portions of its tributaries. These lands could redevelop in the future, such as property owners wishing to add an addition to an existing structure or install armoring along the shoreline.

Based upon past and ongoing land use patterns in the county, vacant residential lots and subdividable parcels have the highest potential for development. Vacant dividable residential parcels are located primarily in concentrated areas on the Yakima River generally between the City of Cle Elum and the Kachess River, along Big and Little Creeks, in two locations on the eastern shore of Lake Cle Elum, and within the Vantage LAMIRD along the Columbia River. Occupied dividable residential parcels are located in isolated pockets along the Yakima River, Manastash Creek, Big and Little Creeks, the west shore of Lake Cle Elum, and within the Vantage LAMIRD.

Vacant non-dividable residential parcels are located in clustered areas throughout County shoreline jurisdiction, particularly along the Yakima River (downstream of the Kachess River), the lower portions of several of its tributaries, and along the western shore of Lake Cle Elum.

New development on vacant parcels can be expected to occur over time depending on demand for housing, job availability, and other factors. The Final Draft SMP contains a full range of policy and regulatory provisions to protect shoreline functions from cumulative

effects of this expected future development. These provisions include buffer and setback requirements, restrictions on shoreline armoring and overwater structures, and other measures as described in Section 3.3. Subdivisions are required to have lots that contain at least one site, including access and utility locations, that is not located entirely within any critical areas. Subdivisions of more than four lots are required to adhere to the standard shoreline buffer without buffer averaging or reduction. Even development that is exempt from a shoreline substantial development permit must comply with these provisions and the County must review all development proposals to ensure that exempt uses meet the Final Draft SMP standards.

3.1.2.1 Development Potential

An analysis of uses and developments that may occur within County shoreline jurisdiction is discussed below. A summary of development potential and SMP protective standards for all shoreline use and development types is presented in Section 3.4.

Residential

According to the build-out analysis, there is potential for approximately 1,210 new single-family dwellings within County shoreline jurisdiction (Table 3-3). Tables in Appendix A show build-out data by reach (based on the reaches in the ICR) and proposed SED. Only reaches with relatively high potential to develop are included in the tables. The majority of these potential new dwellings would occur within the proposed Rural Conservancy SED, as a result of subdividing large parcels into smaller lots, per underlying County zoning density limits. Developable lands within this SED are located throughout the county, but are concentrated primarily along the Yakima River and the lower portions of its tributaries.

Within the proposed Shoreline Residential SED, most of the potential new dwellings are likely to occur on lots less than 1 acre in area within existing subdivisions. Existing subdivisions within this SED are located in clusters in several areas, including the Vantage LAMIRD, along the Yakima River upstream of Cle Elum, and on Lake Cle Elum. Within the proposed Urban Conservancy SED, the potential new dwellings would occur as a result of subdividing large parcels into smaller lots. According to the build-out analysis, the only parcels within the Urban Conservancy SED that could be developed with residences occur within the Ellensburg UGA along the Yakima River.

Foreseeable future residential development within the proposed Natural SED is limited to an area within the Yakima Canyon, and would be limited to 13 new dwellings. The build-out analysis did not identify any potential new dwellings within the proposed High Intensity SED. The values shown in Table 3-3 do not take into account the percent of land that would be constrained by critical areas, the percent of land necessary to build supporting infrastructure (roads, stormwater ponds), and the likelihood of actual development in the next 20 years (typically referred to as the market factor). Therefore, the number of potential new dwelling units depicted in the table may be higher than would occur. The purpose of overestimating development on vacant lands in this manner is to determine impact on ecological functions under a worst-case scenario.

Table 3-3. Residential Development Potential within Shoreline Jurisdiction

Proposed Shoreline Environment Designation	Approximate Number of Potential New Dwellings			Percentage of Total
	On Existing Lots	New Lots Created through Subdivision	TOTAL	
Shoreline Residential	181	41	222	18%
Rural Conservancy	333	544	877	73%
Natural	0	13	13	1%
Urban Conservancy	0	98	98	8%
High Intensity	0	0	0	0%
TOTAL	514	696	1,210	100%

Commercial and Industrial

There is limited commercial- and industrial-zoned land within County shoreline jurisdiction, and based upon a qualitative analysis, most of these areas appear fully developed. However, there is approximately 7 acres of commercial-zoned land within shoreline jurisdiction along Silver Creek that appear underdeveloped, and therefore have future development potential. In addition, there is potential for future redevelopment of existing developed commercial and industrial areas.

A reach-specific analysis of future commercial and industrial development is included in the Appendix A tables.

Recreation

Recreation is a major component of the Kittitas County economy. Popular activities, enjoyed by both residents and visitors include hiking, snowmobiling, off-road vehicle use, camping, boating, bird watching, horseback riding, fishing, and hunting. Many of these activities and the associated existing recreational facilities are concentrated along shorelines (Kittitas County Recreation Advisory Committee, 2004).

New recreational development could occur on both public and private lands (e.g. private campgrounds and RV parks). Potential new recreational development is difficult to quantify and is dependent upon a number of factors, including population growth, demand

for recreational sites, and government priorities and funding. According to the Kittitas County Comprehensive Plan (2013a), the County is partnering and working with various government entities to fund various opportunities for parks and recreational facilities on public lands. Specific projects are identified in the Kittitas County Outdoor Recreation Inventory to help promote dialogue between user groups and landowners and benefit recreation user groups when seeking monies from state and federal granting agencies (Kittitas County Recreation Advisory Committee, 2004).

In-Water Development

Existing docks on County shorelines are rare, as the riverine conditions on most of the shorelines are not conducive to dock construction (with the exception of the Columbia River). There is potential for new docks adjoining privately-owned parcels along the County's storage reservoirs; however, water level fluctuations may limit the demand for new docks. Areas that may be suitable for new docks are described in the reach-scale analysis tables in Appendix A.

There is potential for new boat launches on streams and lakes that are suitable for boating, but no specific sites or projects have been identified. Potential new boat launches would likely be constructed on public lands, as private-use boat ramps are prohibited in the Final Draft SMP.

Agriculture

Kittitas County has significant agricultural development, which is concentrated within the Kittitas Valley and along the lower portions of some of its tributaries (such as Manastash Creek and the Teanaway River). Typical types of agricultural development within the County include irrigated commercial cultivation, ranching, and "hobby farms." Hobby farms are generally defined as small farms operated for pleasure or supplemental income, rather than for primary income.

The creation of new commercial agricultural lands is unlikely, since much of the high-quality arable lands within the County were historically put into agricultural production, and water rights for irrigation are fully allocated (R. Hansen, personal communication, July 22, 2013). Ongoing agricultural activities and practices on existing agricultural lands are not regulated under the SMA. There is potential for new hobby farms within the County, which would be regulated under the SMA.

Forestry

A substantial portion of County shoreline jurisdiction is zoned for commercial forestry and is concentrated along tributaries in the upper County, as well as along the Little Naches River. Most of these parcels are in public ownership (U.S. Forest Service).

Timber harvest activities are regulated by the Forest Practices Act, and are not regulated under the SMA with the exception of conversions to non-forest land use and the removal of timber harvest on shorelines of statewide significance. Also, development related to timber

harvest is regulated, such as road and bridge construction. With the exception of areas within the Alpine Lakes Wilderness Area, much of the commercial forestry-zoned areas are actively logged and contain U.S. Forest Service roads.

Transportation

According to the County's Long Range Transportation Plan (2008), new road corridors in areas with sustained population growth would be needed to improve road network connectivity and additional access for emergency services. Most of the potential population growth, and thus the new road corridors, is anticipated to occur in the Cle Elum-Roslyn-Suncadia sub-area and surrounding the City of Ellensburg. Most of the potential road corridors would generally be short, and consist of "connector" roads linking existing roads. According to the Plan, most of these roads would be constructed outside of shoreline jurisdiction, but some may be located within Yakima River and Lake Cle Elum shoreline jurisdiction. The County's Six-Year Transportation Improvement Program identifies transportation improvements and is updated annually to reflect secured funding or shifts in priorities (Kittitas County, 2013a).

In general, the highest transportation priority of federal, state, and local agencies is to maintain existing roads. Given that portions of existing roadways are located within channel migration- and flood-prone areas, there is potential for additional shoreline armoring and other road maintenance and road widening activities within shoreline jurisdiction.

Utilities

Kittitas County is a center for energy production in Washington State, including wind and hydroelectric energy, with potential for solar energy production. There are no existing plans for expanding hydroelectric power facilities, but there is potential for new wind and solar facilities within the County, along with new transmission lines. Construction of new power generating facilities generally requires environmental review by numerous state and federal agencies, and would require a conditional use permit under the Final Draft SMP.

Mining

Commercial mining has historically occurred along limited shoreline areas within the County; there are several ponds along the Yakima River that are relics of past sand and gravel mining operations.

A brief analysis was conducted to determine the potential for future surface mining development within County shoreline jurisdiction. New mining operations would need to be located in a shoreline environment that allowed mining *and* a zoning district where mining was either allowed outright or with a conditional use permit. Under the Final Draft SMP, mining is a conditional use within the proposed High Intensity, Urban Conservancy, Rural Conservancy, and Aquatic SEDs, and is prohibited within the proposed Shoreline Residential and Natural SEDs. Table 3-4 shows the zoning districts where mining is either

allowed outright or allowed with a conditional use permit, pursuant to KCC Title 17—Zoning.

Table 3-4. Zoning districts where mining is allowed, per KCC Title 17.

Zoning District	Permitted (P) or Conditional Use (CU)
<u>Resource Lands</u>	
Commercial Agriculture	CU ¹
Commercial Forest	P
<u>Rural Non-LAMIRD Lands</u>	
Agriculture 5	CU
Rural 5	CU ²
Agriculture 20	CU ¹
Forest & Range	P
<u>Rural LAMIRD Lands</u>	
Agriculture 3	CU ¹
Agriculture 20	CU ¹
Rural 3	CU ²
Rural 5	CU ²
Forest and Range	P
<u>Urban Lands</u>	
Forest and Range	P

- 1) Noncommercial sand and gravel excavation is permitted for on-site use.
- 2) Permitted when located within an established mining district.

Based upon the County zoning regulations and the Final Draft SMP, surface mining would be allowed or conditionally allowed along most of the County shoreline areas (Figure 3-1).

However, although mining is technically possible along many of the County’s shorelines, there are several mitigating factors that would limit the potential for new surface mining within County shoreline jurisdiction and the minimize the ecological impacts of any mining operations that did choose to located within the shoreline. First, as shown in Figure 3-2, almost all of the County-designated mineral resource lands of long-term significance lie outside of shoreline jurisdiction.

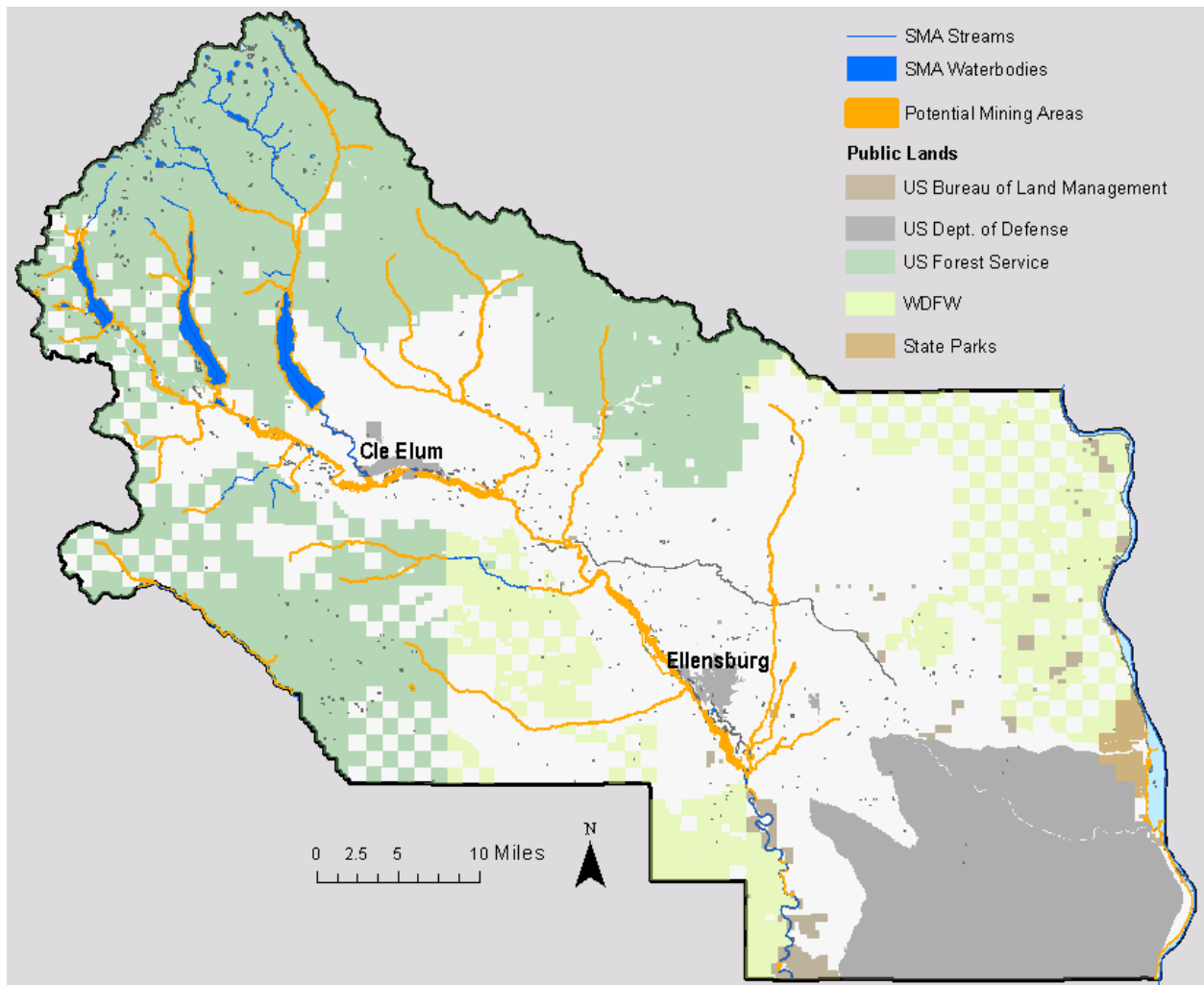


Figure 3-1. Areas where mining could potentially occur within shoreline jurisdiction, per County zoning regulations and the Final Draft SMP

Second, the time and expense required to obtain a Shoreline Conditional Use Permit (required in all shoreline environments that allow mining) in addition to the zoning conditional use permit (required in most zones that allow mining) will likely discourage applicants from seeking approval for new mining within shoreline jurisdiction. Finally, operations that decide to pursue shoreline permits for new mining operations must comply with the following regulations that would limit impacts to shoreline ecological functions:

- Mining below the ordinary high mark shall not cause a net loss of shoreline ecological functions.
- Mining shall not be permitted in designated fish and wildlife habitat areas, except as a part of an approved flood control program or in conjunction with a habitat restoration or enhancement plan.

- The applicant must demonstrate that mining is dependent on a shoreline location, and that demand cannot reasonably be accommodated in operations outside shoreline jurisdiction.

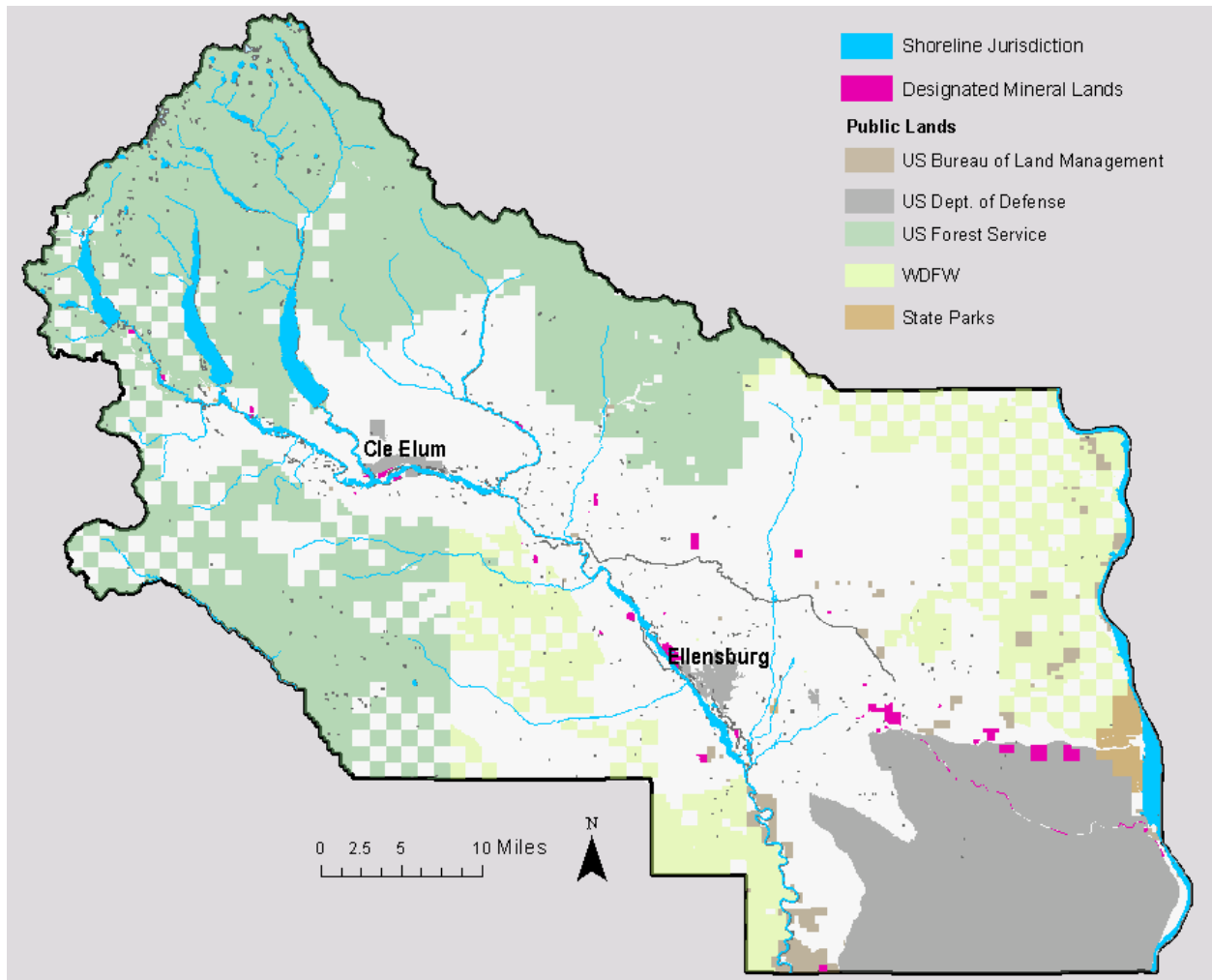


Figure 3-2. County shoreline jurisdiction and designated mineral lands

Due to the significant procedural and regulatory requirements of establishing a new mining operation in the shoreline; coupled with the existence of designated sand and gravel resources with fewer environmental constraints to development located in many areas outside the shoreline jurisdiction; and the applicable standards for protecting ecological functions, the environmental impact of reasonably foreseeable new mining operations in the shoreline jurisdiction is expected to be minimal.

3.2 Ecological Functions at Risk

This section summarizes how foreseeable future development, as identified in the build-out analysis, would affect shoreline functions within Kittitas County. Reach-specific identification of functions at risk is presented in tables in Appendix A.

3.2.1 Water Quality

Water quality of Kittitas County streams and lakes ranges from nearly pristine in the upper watersheds and headwaters to highly degraded in downstream areas that flow through developed and agricultural lands. Many County streams have elevated water temperatures during the summer and fall months, particularly in reaches downstream of storage reservoirs and irrigation diversions and where riparian vegetation has been denuded or otherwise altered. In the Kittitas Valley, fecal coliform contamination is often observed downstream of livestock operations or where faulty septic systems are suspected (Reclamation 2002). Also present are elevated concentrations of legacy pollutants (e.g., chlorinated pesticides) and nutrients (e.g., nitrogen), which are largely caused by the intensive agricultural and irrigation practices common on the Yakima and Columbia rivers.

As new development occurs along Kittitas County shorelines, potential for further water quality degradation will occur. Risks to water quality are the most pronounced downstream of areas with high development potential and/or when development results in large-scale conversion of intact riparian habitat to impervious surfaces (e.g., roofs and pavement). According to the build-out analysis, areas with significant potential for new residential development in the County are concentrated along the Yakima River (primarily the reaches upstream of the Cle Elum River), as well as some of its lower tributaries (such as Little Creek and Manastash Creek).

Currently, many of the developable parcels in these areas consist of relatively undisturbed forest habitat. Clearing forest habitat and constructing impervious surfaces can increase sedimentation and erosion rates, as well as runoff of toxins such as petroleum and heavy metals. Clearing riparian habitat, especially areas in close proximity to a waterbody, can decrease shading and thus increase water temperatures, which is already a significant issue in the Yakima River basin.

Along with the construction of impervious surfaces, new development often involves clearing riparian areas for lawns and landscaping. Fertilizer and herbicide/pesticide runoff from these areas can further degrade water quality. In addition, most of the forecasted development is located in rural areas, where septic systems could be utilized. Septic systems can increase nutrient levels in streams and thus lower dissolved oxygen levels, especially where stream systems occur along or within narrow shoreline riparian zones. This problem is typically more pronounced with older, failing septic systems.

3.2.2 Habitat

Similar to water quality, fish and wildlife habitat within the County ranges from relatively unaltered in the upper watersheds to highly degraded in many downstream areas, particularly where streams flow through valleys where development, agriculture, grazing, and regulated streamflows become prevalent. In the lower reaches of the Yakima River, large woody debris is often removed to avoid disrupting or damaging irrigation diversion and delivery systems. Low-flow conditions and fish passage barriers also occur in many stream reaches, resulting from irrigation water diversions, dams, and reservoir management practices. Despite these habitat limitations, county streams, lakes, and riparian areas support rich fish and wildlife resources, such as anadromous salmon species and priority wildlife habitats.

There is substantial development potential along shoreline areas that are less altered, including the Yakima River upstream of the Cle Elum River, Manastash Creek within Manastash canyon, Swauk Creek, lower Little Creek, and Lake Cle Elum. Development would directly decrease wildlife habitat by converting existing forest and shrub habitat to structures including single-family houses, garages and sheds, landscaping including lawns and ornamental plants and pavement for driveways and roadways. Vegetation removal and development within riparian areas could also affect aquatic habitat by decreasing large woody debris recruitment and organic inputs, degrading water quality, and increasing runoff and erosion rates.

Several areas with substantial development potential are located within wide floodplains, such as along the Yakima River, lower Manastash Creek, and the mainstem Teanaway River. These floodplains contain important wetland and side channel habitats that serve as foraging, over-wintering, and refuge areas for fish. Removing vegetation and adding structures within floodplains can drastically reduce the quality of these habitats.

Some existing and potential development areas are located along streams with high potential for channel migration, such as Manastash Creek and the Teanaway River, which periodically undergo destructive migration events. Channel migration is a natural process that creates and maintains aquatic habitat, but it can be destructive and costly for residents and property owners. As such, many property owners within these areas may wish to construct protective armoring. Hard armoring, such as bulkheads and riprap, degrade fish habitat and can increase the risk of downstream flooding and erosion.

There may be potential for new docks along County lakes and the Columbia River; as well as new boat launches in areas popular for recreational boating, such as the Yakima River. In-water structures can shade or directly impact littoral habitat, which in-turn decreases fish habitat and prey supply. The increased motor boat traffic that is typically associated with these structures can alter stream substrates, introduce pollutants and invasive species, and injure fish.

3.2.3 Hydrology

The majority of the streams and waterbodies within the County have been substantially modified by water management activities which result in an increase in spring runoff and a decrease in summer base flows. Floodplain isolation, channel simplification, and the “flip-flop” flow regime have dramatically altered river-floodplain interactions and degraded the aquatic environment. Extensive floodplains in the Easton, Cle Elum, and Ellensburg reaches of the Upper Yakima basin have been constricted by roads, railroads, and other hydromodifications associated with agriculture, residential development, and gravel mining. Above the three storage reservoirs in the Yakima River basin, hydrologic functions are largely unaltered.

There are shoreline areas with the potential for new development that could substantially alter stream hydrology, including the downstream end of Little Creek, Manastash Creek, Swauk Creek, the mainstem Teanaway River, and the Yakima River upstream of the Cle Elum River. Removal of riparian vegetation cover and an increase in impervious surface levels can alter the natural hydrologic cycles of the streams and increase the frequency, duration, and amount of surface water runoff to downstream areas.

Large-scale residential development could occur within the wide floodplain that is prevalent along the Yakima River, lower Manastash Creek, and the Yakima River. The loss and alteration of floodplain areas can increase the magnitude and frequency of peak flows, as well as the overall potential for flood damage of downstream areas.

Channel migration zones have been identified along several County streams, and encompass areas with significant development potential and a recent history of channel migration and avulsion, such as Manastash Creek and the Teanaway River. There is a high potential for property owners in these areas to attempt to protect their property with hard armoring. Armoring tends to accelerate water flows, which transfers erosive energy downstream and potentially increasing migration rates.

3.3 Protective SMP Standards

This section describes regulations in the Final Draft SMP that would serve to protect shoreline ecological functions. Regulations that specifically address functions at risk are identified in the reach-specific tables in Appendix A.

3.3.1 Shoreline Environment Designations

SEDs have been assigned to each shoreline segment based upon an analysis of the existing designation system under Kittitas County’s current SMP, the Ecology Guidelines (WAC 173-26-211) and the ICR (ESA, 2103) findings. Consistent with the Ecology Guidelines, the proposed SEDs reflect:

- Existing land use patterns;

- The biological and physical character of the shoreline being considered for development; and
- The goals and aspirations of community as expressed through comprehensive plans

The proposed designation criteria were incorporated in Chapter 3 Environment Designations and Management Policies of the Final Draft SMP. The criteria are included in Table 3-5 summary form and were used to apply designations to shorelines.

Table 3-5. Proposed Shoreline Environment Designation Criteria

Proposed Shoreline Environment Designation	Proposed Designation Criteria
<p style="text-align: center;">Natural</p>	<p>A natural environment designation was assigned to shoreline areas when any of the following characteristics applied:</p> <ul style="list-style-type: none"> • The shoreline is ecologically-intact; or • The shoreline represents ecosystems and geologic types that are of particular scientific and educational interest; or • The shoreline is unable to support new uses or development without significant adverse impacts to ecological functions or risk to human safety. <p>Areas with significant existing agriculture lands were not included in the natural designation, except where the existing agricultural operations involved very low intensity uses where there is no significant impact on natural ecological functions.</p>
<p style="text-align: center;">Rural Conservancy</p>	<p>A rural conservancy environment designation was assigned to shoreline areas outside incorporated municipalities and UGAs when any of the following characteristics applied:</p> <ul style="list-style-type: none"> • The shoreline is currently supporting lesser-intensity resource-based uses, such as agriculture, or recreational uses, or is designated agricultural lands; • The shoreline is currently accommodating residential uses; • The shoreline is supporting human uses but subject to environmental limitations; • The shoreline is of high recreational value or with unique historic or cultural resources; or • The shoreline has low-intensity water-dependent uses. <p>Areas designated in the comprehensive plan as LAMIRDS were designated an alternative designation in some cases.</p> <p>“Master planned resorts” were designated an alternative designation in some cases provided the</p>

Proposed Shoreline Environment Designation	Proposed Designation Criteria
	<p>applicable master program provisions did not allow significant ecological impacts.</p> <p>Mineral resource lands were assigned a rural conservancy designation that allowed mining and associated uses in addition to other uses consistent with the rural conservancy environment.</p>
Urban Conservancy	<p>An urban conservancy environment designation was assigned to shoreline areas appropriate and planned for development that are compatible with maintaining or restoring of the ecological functions of the area, that are not generally suitable for water-dependent uses and that lie in commercial or industrial "rural areas of more intense development" if any of the following characteristics applied:</p> <ul style="list-style-type: none"> • They are suitable for water-related or water-enjoyment uses; • They are open space, flood plain or other sensitive areas that should not be more intensively developed; • They have potential for ecological restoration; • They retain important ecological functions, even though partially developed; or • They have the potential for development that is compatible with ecological restoration. <p>Mineral resource lands were assigned an urban conservancy designation that allowed mining and associated uses in addition to other uses consistent with the urban conservancy environment.</p>
Shoreline Residential	<p>A shoreline residential environment designation was assigned to shoreline areas inside UGAs, LAMIRDs or "master planned resorts" and in limited rural areas with predominantly single-family or multi-family residential development or are planned or platted for residential development.</p>
High Intensity	<p>A high-intensity environment designation was assigned to shoreline areas within industrial or commercial "rural areas of more intense development" if they currently supported high-intensity uses related to commerce, transportation or navigation; or are suitable and planned for high intensity water-oriented uses.</p>
Aquatic	<p>An aquatic environment designation was assigned to lands waterward of the ordinary high-water mark.</p>

Overall, the most prevalent designation in the proposed designation system is Rural Conservancy (75 percent). Figure 3-3 indicates the designations that were assigned to the

County's shorelines by percentage of total shoreland acreage. The Aquatic designation is not represented in these acreage totals.

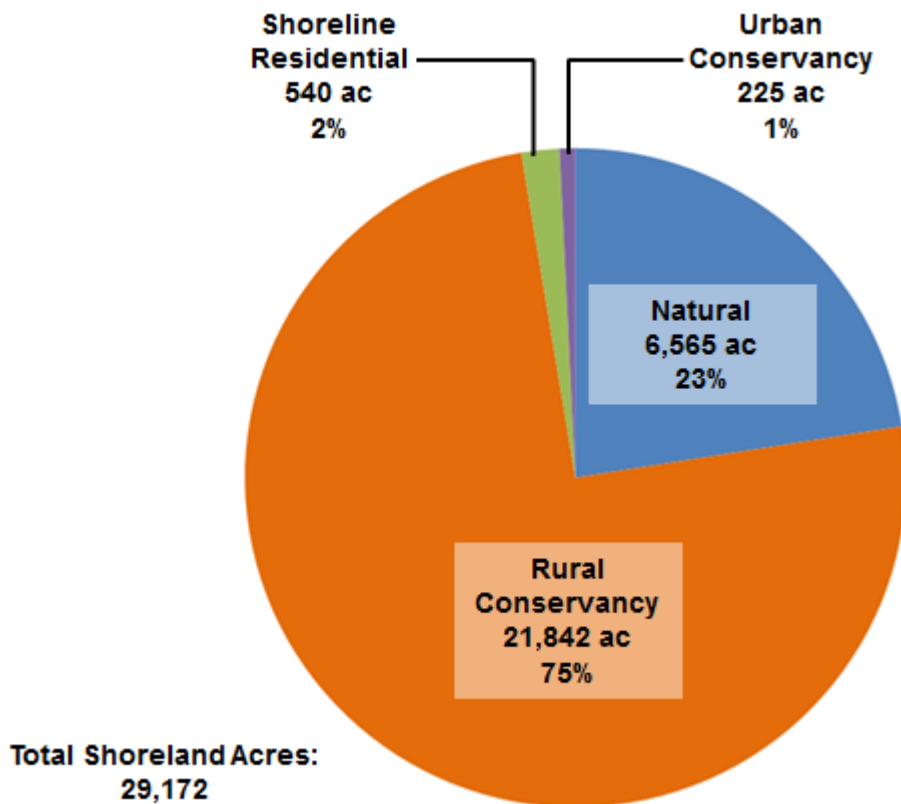


Figure 3-3. Percentage and acres of shoreland by proposed shoreline designation

For each SED, the Kittitas County Final Draft SMP (Sections 3.10 and 5.21) identifies:

- Permitted uses – These are uses and developments that are consistent with the SMA. Such uses/developments require a shoreline substantial development permit or a letter of exemption (A letter of exemption is required for projects that are considered exempt from shoreline substantial development permits. The letter of exemption process is an added check to ensure that the proposed location and design meets all of the requirements of the SMP). Deviations from bulk, dimensional or performance standards may necessitate a variance permit, which requires Ecology approval.
- Conditionally-allowed uses – Uses that may be authorized provided they meet certain criteria. Conditional use permits also require Ecology approval.
- Prohibited uses – These are uses and developments that are inconsistent with the SMA in the specified SED, and cannot be allowed through any permit or variance.

- Required shoreline buffers and setbacks –Shoreline buffers, building setbacks, height, and residential density limits are established for each SED. Buffers and setbacks are intended to protect shoreline ecological functions and water views while supporting other priority uses of the shoreline.

The SED system is designed so that the uses allowed on each shore segment are generally appropriate considering the ecological condition and sensitivity of the land and water, as well as the community land use vision reflected in the zoning. The type and intensity of uses allowed in areas designated Natural, Aquatic and Rural Conservancy are more limited than in areas designated Urban Conservancy, Shoreline Residential and High Intensity. This ensures that sensitive areas are adequately protected from future development. For example, water-dependent commercial development is prohibited in the Natural designation and conditionally allowed in Rural Conservancy. In the High Intensity designation, water-dependent commercial development is permitted. Boating facilities (includes launch ramps, marinas and private docks) are prohibited or conditionally allowed in the Natural and Rural Conservancy designations. In the High Intensity, Urban Conservancy and Shoreline Residential designations, boating facilities are permitted. These differences between the designations reflect an approach to limit certain intensive uses to shorelines that would be able to accommodate new development without significance impacts to ecological functions.

There are several land uses or activities that have been prohibited in all shoreline designations due to their potential to have a substantial impact to shoreline ecological functions or public health and safety. For example, manure lagoons associated with agriculture uses are prohibited in all designations. This avoids the immediate and long term impacts associated with manure lagoons such as severe degradation of water quality. Private boat launch ramps, surface oil and gas drilling, overwater residences, parking not accessory to a permitted use, and telecommunication towers are also prohibited in all designations.

3.3.2 Mitigation Sequencing

Mitigation sequencing is a common hierarchical protocol for avoiding and minimizing environmental impacts. Mitigation sequencing is a requirement per WAC 173-26-201(2)(e) that directs all proposed uses and developments to avoid environmental impacts of a proposal and where unavoidable, include measures to minimize and mitigate those impacts in compliance with the SMP and other applicable regulations. Mitigation sequencing is a requirement in the Kittitas County Final Draft SMP and can be found in Section 4.2 Environmental Protection and Critical Areas, Regulation B.2.

In instances where impacts to ecological functions have the potential to occur, mitigation sequencing requires that all reasonable efforts must be taken to avoid, and where unavoidable, minimize and mitigate impacts such that no net loss of shoreline ecological functions is achieved.

In mitigation sequencing, possible adverse impacts should be avoided altogether by not taking a certain action or parts of an action, or by moving the action. For example, a development project that may impact a wetland habitat might be required to avoid construction activities that will directly impact (e.g. vegetation removal or draining) or indirectly impact (e.g. increased sedimentation or runoff) the wetland habitat. By simply avoiding critical areas no future compensatory mitigation will be required.

When adverse impacts to ecological functions are unavoidable, the magnitude or severity of the impact resulting from an activity should be minimized. This may include reducing or eliminating the adverse impact by preservation and maintenance operations that occur during the life of the action. Minimizing impacts to a project location would include implementing silt fences, straw wattles, and other Best Management Practices to reduce soil erosion and retain water quality in or adjacent to a critical area, in addition to replanting cleared areas to ultimately reduce or abate the severity of the development action.

When avoiding or minimizing impacts is unfeasible, compensation for the impact through mitigation actions must be pursued. This requires monitoring both the impact and mitigation project and taking appropriate corrective measures to ensure that impacts are abated to ensure no net loss. This includes reseeding or replanting impacted areas, restoring water quality and quantity, or otherwise restoring the ecological function. An example of mitigation may include wetland banking or complete restoration of an affected area (e.g., vegetation planting). Mitigated areas should be monitored until they have recovered to a state of no net loss.

3.3.3 Vegetation Conservation

According to Ecology Guidelines, master programs must include “planning provisions that address vegetation conservation and restoration, and regulatory provisions that address conservation of vegetation; as necessary to assure no net loss of shoreline ecological functions and ecosystem-wide processes, to avoid adverse impacts to soil hydrology, and to reduce the hazard of slope failures or accelerated erosion” (WAC 173-26-221(5)(b)).

Kittitas County’s SMP includes provisions for vegetation conservation in Chapter 4 General Policies and Regulations (see Section 4.5). The Final Draft SMP requires new uses and developments to be located landward of required shoreline buffers. The SMP also requires shoreline buffers to be maintained in a well-vegetated condition that supports native plant species at densities that would occur in similar undisturbed settings. The focus of these provisions is to establish shoreline buffers and limit development and activities in the buffers.

Clearing or removing vegetation within shoreline jurisdiction but outside of shoreline buffers is allowed only when associated with an allowed use or development. Additionally, development and uses within the Rural Conservancy and Natural SEDs must be situated to avoid or minimize impacts to native vegetation communities, where possible. These

provisions must be met by any use, development, or activity regardless if a shoreline permit is required or not.

3.3.4 Shoreline Buffers and Setbacks

The Final Draft SMP (Section 4.5, Table 4.5-1, Section 5.20, and Table 5.21-1) requires new uses and developments to be located landward of shoreline buffers summarized in Table 3-6.

Table 3-6. Required Shoreline Buffers (Type S Waters)

Shoreline Environment Designation	Minimum Buffer Width
High Intensity	75 feet
Urban Conservancy	100 feet
Shoreline Residential	100 feet
Rural Conservancy	100 feet
Natural	150 feet

A 15 foot building setback is also established in Section 5.21 and measured from the edge of the shoreline buffer. The Final Draft SMP also requires subdivisions to have lots that contain at least one site that is suitable for use or development that adheres to the standard shoreline buffer. These requirements ensure that new development and new subdivisions meet the buffers described in Table 3-6 above.

As described under Section 3.3.3 above, shoreline buffers must be maintained in a predominantly well-vegetated condition and clearing or other vegetation removal or alteration that is not associated with an allowed use or development is prohibited.

Protection and restoration of riparian zones is important for improvement of water quality and maintenance of cool water for salmon recovery. Protection of existing native vegetation and enhancement of degraded riparian areas is a key component in protecting water quality and improving in-stream habitat for listed salmon to support salmon recovery. It also buffers streams and lakes from noise and human activities associated with property use.

3.3.5 Critical Areas Standards

Critical area protections must be included in the SMP per Ecology Guidelines. SMPs are required to incorporate protections for critical areas that assure no net loss of shoreline ecological functions necessary to sustain shoreline natural resources. Critical area regulations for wetlands, aquatic habitat conservation areas, fish and wildlife habitat conservation areas, geologically hazardous areas, frequently flooded areas, and critical

aquifer recharge areas are established in Section 4.2. As an overview, critical area buffers for wetlands and aquatic habitat conservation areas are shown in Table 3-7.

Table 3-7. Summary of Buffer Requirements for Wetlands and Aquatic Habitat Conservation Areas

Critical Area		Standard Buffer	
Wetlands	<i>Category</i>	<i>Low to Moderate Intensity Use and Development</i>	<i>High Intensity Use and Development</i>
	Category I	150 foot buffer	250 foot buffer
	Category II	100 foot buffer	200 foot buffer
	Category III	75 foot buffer	150 foot buffer
	Category IV	50 foot buffer	50 foot buffer
Aquatic Habitat Conservation Areas	Type S Waters	See Table 3-5	
	Type F Waters	100 foot buffer	
	Type Np Stream	50 foot buffer	
	Type Ns Stream	30 foot buffer	

Subdivisions must have lots that contain at least one site, including access and utility locations, that is suitable for use or development and is not located entirely within a wetland, aquatic habitat conservation area, floodway, channel migration zone, or landslide hazard area. The new lots must adhere to the standard shoreline buffer without buffer averaging or reduction.

The County also designates wildlife habitat conservation areas, geologically hazardous areas, aquifers and floodplains as critical areas and establishes standards and use limitations. Standards and limits on certain uses for these critical areas are described in Table 3-8 below.

Table 3-8. Summary of Requirements for Wildlife Habitat Conservation Areas, Frequently Flooded Areas, Geologically Hazardous Areas and Aquifers

Critical Area	Standards and Use Limitations
Wildlife Habitat Conservation Areas	<p>A habitat management plan (HMP) must be prepared if a proposed use or development is located within 200 feet of a known or suspected wildlife habitat conservation area and there are potential direct or indirect impacts on wildlife species or habitat. The HMP must identify methods and measures to avoid, minimize, or compensate for adverse impacts associated with the proposed use development.</p> <p>For unavoidable impacts to wildlife habitat conservation areas, a wildlife habitat management and mitigation plan must be prepared and must demonstrate that when implemented there will no net loss of ecological function of habitat.</p>
Geologically Hazardous Areas	<p>New shoreline uses and developments must be located, designed, constructed and maintained in a manner that avoids impacts to geologically hazardous areas.</p> <p>If a severe erosion hazard, mine hazard, or landslide hazard (other than channel migration zone) is present, a geologic hazard risk assessment is required. If further analysis is required, a geotechnical report is required that recommends a required buffer or setback that must be maintained between the proposed action and the hazard to ensure the safety of the use or development.</p> <p>If a channel migration zone is present, the development must either be located landward of the CMZ or the proponent must either:</p> <ol style="list-style-type: none"> 1) submit a CMZ study that demonstrates that the subject property is effectively protected (disconnected) from channel movement due to permanent levees or infrastructure; or 2) Submit a CMZ study that demonstrates that the proposed use or development site has minimal risk of channel migration during the next 100 years due to existing channel type, land cover, stable surficial geology, low soil erosion potential, lack of avulsion pathways, and low inundation frequencies. <p>The Administrator may prohibit or limit use or development or require a buffer based on the CMZ assessment.</p>
Frequently Flooded Areas	<p>New uses must not reduce the effective flood storage volume within frequently flooded areas. Compensatory storage must be provided if grading, fill or other activity will occur within a frequently flooded area. Compensatory storage must provide equivalent volume at equivalent elevations to that being displaced; be hydrologically connected to the source of flooding; and designed to prevent fish stranding.</p>

Critical Aquifer Recharge Areas	<p>New uses and development in critical aquifer recharge areas (CARA) must not cause contaminants to enter the aquifer or significantly adversely affect the recharging of the aquifer. The use or development must comply with water source protection requirements and must be designed and constructed in accordance with storm water management standards.</p> <p>The use of fertilizers, herbicides, pesticides, or other chemical for vegetation management within critical aquifer recharge areas must adhere to the best management practices to prevent impacts to water quality and water supply. Where the application of chemicals covers five or more acres, a mitigation plan must be provided.</p>
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Six species of fish in the Columbia River system have been listed as Threatened under federal laws and more are proposed for listing. The Washington Department of Fish and Wildlife priority habitat database identifies important anadromous fish populations throughout the County. In addition to fish, numerous priority wildlife species are mapped along County shorelines. Buffers serve to protect aquatic habitats, maintain water quality, and provide overall protection for fish and wildlife. Riparian areas are the transitional zones between aquatic and terrestrial environments. These areas provide physical separation from the river, stream or lake and proposed development so that urban runoff is minimized and functions associated with riparian vegetation is retained. Improving the conditions of degraded buffers can enhance fragile aquatic areas and improve ecological functions.

3.3.6 Allowed Shoreline and Critical Area Buffer Alterations

Shoreline and critical buffers are generally required to be left undisturbed but there are some exceptions that allow for buffer reduction, buffer averaging and activities and developments within buffers under limited circumstances. These allowances provide for minimal infill development while still maintaining or improving existing levels of protection for riparian zones, shoreline vegetation, and associated habitats.

3.3.6.1 *Shoreline Buffer Alterations*

Shoreline Buffer Averaging

Shoreline buffer widths may be averaged to accommodate a single-family residential development or a water-dependent or water-related development. Buffer averaging is only allowed in those limited instances when adherence to the standard buffer is infeasible or presents a substantial hardship because of site conditions, lot configuration or other circumstances. Residential subdivisions of more than four lots and non-water-dependent and non-water-related developments are not eligible for buffer averaging except through a shoreline variance. The minimum width of the buffer at any given point must be at least 75 percent of the standard buffer or 25 feet, whichever is greater. The net buffer area after averaging (total acreage) must not be less than the standard buffer area. To maintain no net loss of buffer functions, the area that is added to the buffer to offset the reductions must be well-vegetated and may require vegetation enhancement.

Common Line Shoreline Buffer

To ensure new single-family dwellings have similar, though not necessarily equivalent, shoreline views as existing development, a common line shoreline buffer—determined by averaging the buffers for each of the adjacent residential dwelling units on the shoreline—may be utilized for the development of a single-family dwelling where:

1. The lot was a legal lot of record in place on the date of the adoption of the SMP;
2. The lot is located adjacent to existing residential dwelling units on both adjacent shoreline lots;
3. The lot is located within an urban growth area;
4. There is less than 15 feet of elevation difference between the vacant lot and adjacent lots and less than two hundred fifty 250 cubic yards of grade or fill is required to accommodate use of the common line shoreline buffer; and
5. A management and mitigation plan prepared by a qualified professional shall be submitted and approved which demonstrates no net loss of ecological functions.

Activities Allowed in Shoreline Buffers

Alterations to the shoreline buffers are allowed to accommodate one of the following uses or developments. It must be limited to the minimum necessary and vegetation enhancement may be required as compensation:

1. Shoreline view corridors limited to 25 feet in width or 25 percent of the width of the lot frontage, whichever is less
2. Private pathways made of pervious materials and no greater than 6 feet in width
3. Hazard tree removal
4. Invasive species management
5. Public trails and other public access improvements
6. Water-dependent or water-related utilities and essential public facilities
7. Irrigation structures

3.3.6.2 *Allowed Critical Buffer Alterations*

Similar to shoreline buffers, there are some exceptions that allow for critical area buffer alterations including buffer averaging and reduction.

Critical Area Buffer Averaging

Wetland and stream buffer widths may be averaged to accommodate a single-family residential development or a water-dependent or water-related development. Buffer averaging is only allowed in those limited instances when adherence to the standard buffer is infeasible or presents a substantial hardship because of site conditions, lot configuration or other circumstances. Residential subdivisions of more than four lots and non-water-dependent and non-water-related developments are not eligible for buffer averaging except through a shoreline variance. The minimum width of the buffer at any given point must be at least 75 percent of the standard buffer or 25 feet, whichever is greater. The net buffer area after averaging (total acreage) must not be less than the standard buffer area. To maintain no net loss of buffer functions, the area that is added to the buffer to offset the reductions must be well-vegetated and may require vegetation enhancement. For wetland buffers, the applicant must demonstrate that the wetland would benefit from a wider buffer in places and would not be adversely impacted by a narrower buffer in other places. For stream buffers, the applicant must demonstrate that the buffer averaging will not reduce stream or habitat functions or adversely affect salmon habitat.

Critical Area Buffer Reduction

Wetland and aquatic habitat conservation area buffers may be reduced on sites that lack well-vegetated buffers to accommodate single-family, water-related or water-dependent development. Residential subdivisions of more than four lots and non-water dependent and non-water-related developments are not eligible for buffer reduction except through a shoreline variance. Buffer reduction is only allowed in those limited instances when adherence to the standard buffer is infeasible or presents a substantial hardship because of site conditions, lot configuration or other circumstances. The minimum width of the reduced buffer must be at least 75 percent of the standard buffer and the reduced portion of the buffer cannot exceed 40 percent of the buffer length on the development property. To maintain no net loss of buffer functions, a mitigation plan must be prepared and implemented and the reduced buffer must be planted and enhanced.

3.3.7 Unregulated and Exempt Activities

Ecology Guidelines identify specific developments and activities as exempt from obtaining a shoreline substantial development permit under the SMP. The developments and activities that are considered exempt and are anticipated to occur along Kittitas County shorelines include: single-family development and appurtenances, normal protective bulkheads associated with single-family development, dock modification below the threshold criteria for fair market value, vegetation clearing and maintenance, construction and practices necessary for farming and irrigation and restoration projects.

Exempt developments and activities (per WAC 173-27-040) may have to obtain a conditional use permit when required by a local government's SMP or a variance if the development is not consistent with bulk and dimensional standards (see Section 3.3.8 for information on conditional use permits and variances). For exempt uses not required to

obtain a conditional use permit, a letter of exemption must be obtained from the County. A letter of exemption from the County that verifies the project would conform to all SMP goals, policies and regulations is required for all activities considered exempt. For projects that require County permits, such as most construction, the County reviews the projects for compliance with the SMP before the permit is issued. Other exempt activities are enforced only on complaint basis. By establishing a formal shoreline permit review process for exemptions, the County has reduced the possibility of confusion during building permit review and increased scrutiny for shoreline compliance.

The following are activities not regulated by the Shoreline Management Act:

1. Forest practices regulated under RCW 76.09 are not subject to regulations under the Act or a local Program (except for conversions to non-forest land use) (WAC 173-26-241(3)(e)).
2. Existing or ongoing agricultural activities occurring on agricultural lands (RCW 90.58.065).

Forest practices and existing and ongoing agricultural activities on agricultural lands are not under the jurisdiction of the Final Draft SMP but are regulated under other local, state and federal standards. Impacts to shoreline ecological functions and processes are anticipated to continue and include water quality degradation from storage reservoirs, irrigation diversions, alterations to riparian vegetation, fecal contamination from livestock operations, fertilizer and herbicide/pesticide runoff; habitat loss from regulating streamflows, channelized streams, fish passage barriers; and hydrologic alterations from flip-flop flow regime, channel simplification and floodplain isolation. Impacts from forest harvest activities include erosion and sedimentation, as well as habitat loss.

3.3.8 Uses Requiring Conditional Use Permits and Variances

Developments that have impacts that cannot be anticipated or are considered uncommon, which cannot be reasonably identified during the SMP planning process, are typically allowed only with approval of a conditional use permit. For example, impacts and effects from riverine gravel mining include sedimentation, loss of riparian habitat, and degradation of fish habitat. Requiring this use to obtain a conditional use permit would help identify and address such impacts during the permit process. In some cases, activities exempt from shoreline substantial development permits are required to obtain a conditional use permit (per WAC 173-27-040). For example, the Kittitas County Final Draft SMP requires conditional use permits in all SEDs where allowed for the following exempt developments: dikes, levees, breakwaters, groins, jetties, bulkheads and revetments. To protect intact shoreline ecological functions in areas designated Natural, the Final Draft SMP also requires a conditional use permit for regulated agricultural activities including cultivation, orchards and buildings; private and joint-use docks, piers and floats; single-family dwellings; and bioengineering approaches. Other uses that require a conditional use permit but are not considered exempt include: dredging and dredge material disposal,

water-oriented industrial development, dams, diversions, tailrace structures, mining, non-water-oriented recreational development and utility facilities

Evaluation under the conditional use permit process ensures that all impacts are addressed and that there is no net loss of ecological function after mitigation. Local governments make decisions on shoreline conditional uses, but these decisions need review and approval by Ecology and provide opportunities for citizens to provide input into Ecology's decision and provides for the opportunity to appeal final decisions to the State Shorelines Hearing Board.

Developments that do not comply with bulk and dimensional standards in the SMP, or cannot adhere to the standards in the SMP including the provisions to protect critical areas could only be allowed if a shoreline variance permit is approved. Variances are strictly limited to granting relief where there are extraordinary circumstances relating to the physical character or configuration of property such that the strict implementation of the SMP would impose unnecessary hardships on the applicant or thwart the policies set forth in RCW 90.58.020.

Evaluation under the variance process must ensure that all impacts are addressed through mitigation. The shoreline variance process also elevates final decision-making to Ecology with statewide opportunity for involvement in hearings and appeals.

3.3.9 Illegal Activities

Violations of the SMP, such as a dock built illegally, vegetation removed from a buffer, unreported spills of pollutants, or illegal construction of bulkheads, could adversely affect shoreline ecological functions and harm shoreline resources. Without enforcement, impacts from such activities would not likely be mitigated. Once identified by the local government, illegal actions are expected to be corrected through enforcement and, it is assumed, after-the-fact mitigation would be required as part of that enforcement.

3.4 Summary of Potential Impacts and SMP Protective Standards by Use Type

The following table summarizes the potential impacts on shoreline ecological functions of uses or developments that are allowed or conditionally allowed in the Final Draft SMP and outlines the protective regulations proposed in the Final Draft SMP.

Table 3-9. Summary of Potential Impacts and SMP Protective Standards by Use Type

Use / Development Type	Existing Development	Expected Type and Location of Future Development	Potential Impacts of Future Development on Shoreline Ecological Functions (water quality, habitat, hydrology)	SMP Protective Standards
Residential Development	<p>Residential development is present along many of the County's shorelines, including the following:</p> <ul style="list-style-type: none"> • Keechelus Lake • Lake Kachess (docks and piers are also present along western shoreline) • Lake Cle Elum • Yakima River • Right bank of the Kachess River north of I-90 • Lower Cle Elum River at Suncadia Development. • Lower portion of Swauk Creek, Taneum Creek, Naneum Creek • Manastash Creek • Cherry Creek • Park Creek • Wilson Creek 	<p>Vacant dividable residential parcels are located primarily in concentrated areas on the Yakima River generally between the City of Cle Elum and the Kachess River, along Big and Little Creeks, in two locations on the eastern shore of Lake Cle Elum, and within the Vantage LAMIRD along the Columbia River.</p> <p>Occupied dividable residential parcels are located in isolated pockets along the Yakima River, Manastash Creek, Big and Little Creeks, the west shore of Lake Cle Elum, and within the Vantage LAMIRD.</p> <p>Vacant non-dividable residential parcels are located in clustered areas throughout County shoreline jurisdiction, particularly along the Yakima River (downstream of the Kachess River), the lower portions of several of its tributaries, and along the western shore of Lake Cle Elum.</p>	<p>Clearing vegetation for home sites would reduce water shading, and could exacerbate water temperature problems.</p> <p>An increase in impervious surfaces resulting from new roofs and pavement could increase sediment and pollutant runoff to streams or lakes.</p> <p>Use of fertilizers and herbicides within new landscaping areas could degrade the water quality of streams and lakes.</p> <p>Clearing vegetation for home sites along the stream or lake shore could reduce large woody debris recruitment, water shading and wildlife habitat.</p> <p>Constructing new shoreline armoring may impact habitat-forming processes within the creek and degrade fish habitat.</p> <p>Construction of new homes and other structures within the active channel migration zone could alter stream conditions and fish habitat, and increase flood, sedimentation and erosion patterns. New</p>	<p>Overwater residences are prohibited in all SEDs.</p> <p>Shoreline buffers are required for all developments and range from 75 – 150 feet depending on the SED. A 15 foot building setback from the buffer is also required. Buffers must be maintained in a predominately well-vegetated condition. Clearing not associated with an allowed use or development is not allowed.</p> <p>New residential development, including lot creation, must not require structural flood hazard reduction measures within the floodway or shoreline stabilization measures during the life of the development/use.</p> <p>New uses are not allowed to reduce the effective flood storage volume within frequently flooded areas. Subdivisions must have lots that contain at least one site that is suitable for development and is not located entirely within a floodway or channel migration zone.</p> <p>Development must be located landward of the channel migration hazard area or the applicant must submit documentation that demonstrates the parcel is effectively protected or has minimal risk.</p>

Use / Development Type	Existing Development	Expected Type and Location of Future Development	Potential Impacts of Future Development on Shoreline Ecological Functions (water quality, habitat, hydrology)	SMP Protective Standards
			structures built within the floodplain could increase downstream flooding problems.	
Commercial and Industrial Development	Commercial and industrial lands are located just west of Ellensburg city limits, south of Cle Elum along the Yakima River and within the Vantage LAMIRD.	Most commercial and industrially-zoned lands are already developed in the County's shoreline jurisdiction. The only remaining undeveloped properties are found along Silver Creek.	<p>An increase in impervious surfaces, resulting from new roofs and pavement, could increase sediment and pollutant runoff to streams.</p> <p>Clearing vegetation for new structures and parking lots along a stream could reduce large woody debris recruitment, water shading, and wildlife habitat.</p> <p>New structures built within the floodplain could increase downstream flooding problems.</p>	<p>Water-oriented industrial development is conditionally allowed in all SEDs except it is prohibited in Natural. Nonwater-oriented industrial development is prohibited in all SEDs except for High Intensity where it is conditionally allowed.</p> <p>Shoreline buffers are required for all developments and range from 75 – 150 feet depending on the SED. A 15 foot building setback from the buffer is also required. Buffers must be maintained in a predominately well-vegetated condition. Clearing not associated with an allowed use or development is not allowed.</p> <p>Commercial and industrial development must not result in significant adverse impacts to shoreline resources and values, such as navigation, recreation, and public access.</p> <p>New uses and developments must provide stormwater management facilities designed, constructed, and maintained in accordance with the</p>

Use / Development Type	Existing Development	Expected Type and Location of Future Development	Potential Impacts of Future Development on Shoreline Ecological Functions (water quality, habitat, hydrology)	SMP Protective Standards
				current stormwater management standards. Best management practices for control of erosion and sedimentation must also be implemented for all use and development proposals in shorelines through an approved temporary erosion and sediment control plan.
Recreational Development	<p>Existing recreational opportunities include hiking, snowmobiling, off-road vehicle use, camping, boating, bird watching, fishing, and hunting found mostly on state and federally-owned lands.</p> <p>Opportunities are most extensive along the Yakima River. County residents can access the river through parks and boat launches.</p> <p>Other major shorelines that provide for recreational opportunities, include the Columbia River, Lake Easton, Lake Cle Elum, and the lakes and streams within the Alpine Lakes</p>	<p>Creating a new Teanaway River/Yakima River Confluence Park</p> <p>Improvements to trails and new trail connections for horseback riding, mountain biking and hiking.</p> <p>Improvements to existing parks and campgrounds.</p>	<p>An increase in impervious surfaces resulting from new roofs and pavement could increase sediment and pollutant runoff to streams or lakes.</p> <p>Clearing vegetation for recreational facilities along the shoreline could reduce large woody debris recruitment, water shading and wildlife habitat.</p>	<p>Shoreline buffers are required for all developments and range from 75 – 150 feet depending on the SED. A 15 foot building setback from the buffer is also required. Buffers must be maintained in a predominately well-vegetated condition. Water-dependent or water-related recreational uses and developments may be allowed in the shoreline buffer, provided that the amount of buffer encroachment is kept to the minimum necessary.</p> <p>Recreational facilities must be designed to take maximum advantage of and enhance the natural character of the shoreline area. The use of native plant species is preferred.</p> <p>Recreational facilities must incorporate means to prevent erosion and control the amount of runoff and prevent harmful concentrations of chemicals and sediment from entering waterbodies.</p>

Use / Development Type	Existing Development	Expected Type and Location of Future Development	Potential Impacts of Future Development on Shoreline Ecological Functions (water quality, habitat, hydrology)	SMP Protective Standards
	Wilderness Area			
In-water Development	<p>Docks and piers are found at Lake Cle Elum and along the Columbia River</p> <p>Major dams are located at the Columbia River, Lake Easton, Keechelus Lake, Kachess Lake, and Lake Cle Elum</p> <p>Diversions are found along many streams within the County, including Manastash, Taneum, and Big creeks.</p>	<p>In-water development is anticipated to occur as part of new residential development where dock and pier construction is already present.</p> <p>Public ramps may occur as part of park development on County or State-owned lands.</p>	<p>Construction of new docks and associated motor boat usage could shade out aquatic plants and disturb littoral habitat.</p>	<p>Private launch ramps are prohibited in all SEDs. Dams, diversions and tailrace structures are conditionally allowed in all SEDs.</p> <p>Standards for dock materials, dock size and dimension, and location limit the amount of shading and potential for pollution.</p> <p>In-stream structures (a structure that causes or has the potential to cause water impoundment or the diversion, obstruction or modification of water flow) must be constructed and maintained in a manner that does not degrade the quality of affected waters. Reasonable conditions may be required to achieve this objective, such as setbacks, buffers, or storage basins.</p> <p>In-stream structures must allow for natural ground water movement and surface runoff.</p> <p>The design of all dams and the suitability</p>

Use / Development Type	Existing Development	Expected Type and Location of Future Development	Potential Impacts of Future Development on Shoreline Ecological Functions (water quality, habitat, hydrology)	SMP Protective Standards
				<p>of the proposed site for dam construction must be certified by a professional engineer licensed in the State of Washington. The professional design must include a maintenance schedule.</p> <p>Shoreline modification projects associated with in-stream structures must be designed and constructed to avoid or minimize impacts to sediment transport.</p>
<p>New agricultural activities on land not currently in agricultural use</p>	<p>Agricultural lands are located within valley bottoms, primarily along the Yakima River.</p>	<p>The creation of new agricultural lands is unlikely, since much of the high-quality arable lands within the County were historically put into agricultural production, and water rights for irrigation are generally fully allocated.</p>	<p>Agricultural activities that result in the removal of vegetation could affect water quality and nutrient inputs to aquatic environment (e.g., excessive nutrients from fertilizers; lack of nutrients and food sources from overhanging vegetation).</p> <p>Irrigation facilities (e.g., diversions, channels, pumps, dikes) could alter hydrologic processes (timing and volume of flows) and drainage patterns.</p> <p>Irrigation systems could divert water, reducing water quantity downstream.</p>	<p>Manure lagoons are prohibited in all SEDs. Feedlots are only conditionally allowed in High Intensity and Rural Conservancy SEDs.</p> <p>Shoreline buffers are required for all developments and range from 75 – 150 feet depending on the SED. A 15 foot building setback from the buffer is also required. Buffers must be maintained in a predominately well-vegetated condition. Clearing not associated with an allowed use or development is not allowed.</p> <p>New agricultural activities, equipment, and facilities must utilize best management practices established by the USDA Natural Resources Conservation Service or other similar agency.</p> <p>Discharge of any manure storage facility into ground or surface water is prohibited.</p>

Use / Development Type	Existing Development	Expected Type and Location of Future Development	Potential Impacts of Future Development on Shoreline Ecological Functions (water quality, habitat, hydrology)	SMP Protective Standards
Class IV Forest Practices and Harvesting within 200' of the OHWM of a Shoreline of Statewide Significance	Commercial forestry lands are located within the upper watersheds and the western portion of the County. Lands zoned for Forest and Range are located at lower elevations.	Forest practices are anticipated to continue on commercial forestry-zoned lands with the exception of areas within the Alpine Lakes Wilderness Area. Conversion of forest lands are anticipated to be minimal.	Timber harvest activities can increase sedimentation and erosion rates, as well as directly impact wildlife habitat.	All harvesting within 200' of the ordinary high-water mark of a Shoreline of Statewide Significance must use methods consistent with RCW 90.58.150 (selective harvest).
Transportation	Major roadways that cross or traverse along shorelines include: <ul style="list-style-type: none"> • I-90 • Canyon Road • Highway 10 • Highway 97 	Roadway improvements include repaving and other maintenance activities, new bridges over Naneum Creek, and safety enhancements to existing roads.	New roads and widening of existing roads increases impervious surface levels, which increase sedimentation and toxic runoff to waterbodies. New bridges and culverts can directly impact instream habitat, and undersized bridges and culverts can cause downstream scouring.	Parking not accessory to a permitted use is prohibited in all SEDs. Shoreline buffers are required for all developments and range from 75 – 150 feet depending on the SED. A 15 foot building setback from the buffer is also required. Buffers must be maintained in a predominately well-vegetated condition. Clearing not associated with an allowed use or development is not allowed. Construction of roadways across stream corridors must be by the most direct route possible having the least impact to the stream corridor. Roadways that must run parallel to stream or wetland edges must be along routes having the greatest possible distance from stream or wetland and the least impact to the corridor. Roadways within the stream corridor must not hydrologically obstruct, cut-off, or isolate stream corridor features. Bridges and water-crossing structures shall not constrict the stream channel or

Use / Development Type	Existing Development	Expected Type and Location of Future Development	Potential Impacts of Future Development on Shoreline Ecological Functions (water quality, habitat, hydrology)	SMP Protective Standards
				impede the flow of the ordinary high water, sediment and woody debris. The use of bridges is the preferred means to preserve natural streams and drainage ways. Where bridges are not feasible, large, natural bottom culverts, multi-plate pipes and bottomless arches must be used.
Utilities	<p>Major transmission lines and utility facilities in shoreline jurisdiction include:</p> <ul style="list-style-type: none"> • Wanapum Dam • Puget Sound Energy transmission lines • Ellensburg and Cle Elum wastewater treatment plants 	Potential for new wind and solar facilities, along with new transmission lines.	<p>Clearing vegetation for utility facilities along the shoreline could reduce large woody debris recruitment, water shading and wildlife habitat.</p> <p>New structures built within the floodplain could increase downstream flooding problems.</p>	<p>Solid waste disposal facilities and telecommunication towers are prohibited in all SEDs. Utility production and processing facilities are conditionally allowed in all SEDs except they are prohibited in the Natural SED. Power generating facilities and transmission facilities are conditionally allowed in all SEDs. Water systems are conditionally allowed in the Natural SED and permitted in all other SEDs.</p> <p>Shoreline buffers are required for all developments and range from 75 – 150 feet depending on the SED. A 15 foot building setback from the buffer is also required. Buffers must be maintained in a predominately well-vegetated condition. Clearing of vegetation for the installation or maintenance of utilities must be kept to a minimum and upon project completion any disturbed areas must be restored to their pre-project condition.</p> <p>Non-water dependent utilities should be placed outside of shoreline jurisdiction unless no other feasible option exists. Restoration of ecological functions must</p>

Use / Development Type	Existing Development	Expected Type and Location of Future Development	Potential Impacts of Future Development on Shoreline Ecological Functions (water quality, habitat, hydrology)	SMP Protective Standards
				<p>be a condition of new and expanded non-water-dependent utility facilities.</p> <p>All utility facilities must be designed and located to preserve the natural landscape. The Administrator may require the relocation or redesign of proposed utility development in order to ensure no net loss of ecological function.</p> <p>Transmission and distribution facilities must cross areas of shoreline jurisdiction by a route that has the least ecological impact to the shoreline.</p> <p>All underwater pipelines transporting liquids intrinsically harmful to aquatic life or potentially injurious to water quality are prohibited, unless no other feasible alternative exists.</p> <p>Utilities that need water crossings must be placed deep enough to avoid the need for bank stabilization and stream/riverbed filling both during construction and in the future due to flooding and bank erosion that may occur over time. Boring, rather than open trenching, is the preferred method of utility water crossing.</p>
Mining	There are no active mining operations within County shoreline jurisdiction.	There is low likelihood for new surface mines within the County, as significant mineral resources are present outside of floodplains/shoreline jurisdiction that have less	Surface mining along shorelines and within floodplain can result in a variety of impacts, including water quality degradation, instream and floodplain habitat destruction, and changes in stream hydrology.	<p>Mineral prospecting is permitted in all SEDs. Mining is conditionally allowed in all SEDs except it is prohibited in Shoreline Residential and Natural.</p> <p>Shoreline buffers are required for all developments and range from 75 - 150</p>

Use / Development Type	Existing Development	Expected Type and Location of Future Development	Potential Impacts of Future Development on Shoreline Ecological Functions (water quality, habitat, hydrology)	SMP Protective Standards
		environmental constraints.		<p>feet depending on the SED. A 15 foot building setback from the buffer is also required. Buffers must be maintained in a predominately well-vegetated condition. Clearing not associated with an allowed use or development is not allowed.</p> <p>Mining is not permitted in designated fish and wildlife habitat areas, except as a part of an approved flood control program or in conjunction with a habitat restoration or enhancement plan.</p> <p>The applicant must demonstrate that mining is dependent on a shoreline location, and that demand cannot reasonably be accommodated in operations outside shoreline jurisdiction.</p>
Aquaculture	<ul style="list-style-type: none"> Yakama Nation fish hatchery 	No aquaculture facilities are currently proposed. New fish hatchery facilities are the most likely type of aquaculture facility anticipated in the county.	Aquaculture facilities can increase nutrient loading, introduce non-native species, and degrade stream and lake habitat. Potential impacts can vary greatly depending upon the location of the facility, the aquatic species being farmed, and the scale of the aquaculture operation.	<p>Floating net pens are conditionally allowed in the Aquatic SED. On shore facilities are conditionally allowed in all SEDs except for Natural.</p> <p>Aquaculture facilities must avoid significant conflict with water-dependent uses, the spreading of disease, introduction of non-native species, or impacts to shoreline aesthetic qualities.</p>
Dredging	Periodic dredging occurs around some road structures that are located near or across streams.	Dredging proposals are anticipated to be associated with flood management and restoration projects. Maintenance dredging is associated with the protection of	Dredging can significantly degrade aquatic habitat, directly impact littoral habitat, alter stream hydrology, and increase water turbidity	<p>Dredging is conditionally allowed in all SEDs except in Natural where it is prohibited.</p> <p>New uses and developments should be sited and designed to avoid or, where</p>

Use / Development Type	Existing Development	Expected Type and Location of Future Development	Potential Impacts of Future Development on Shoreline Ecological Functions (water quality, habitat, hydrology)	SMP Protective Standards
		capital facilities, such as bridges.		<p>avoidance is not possible, to minimize the need for new and/or maintenance dredging. Dredging in surface waters is allowed only where necessary because of existing navigation needs, habitat restoration or improvement, maintenance or construction of water-dependent uses.</p> <p>Dredging and excavation shall be confined to the minimum area necessary to accomplish the intended purpose or use.</p> <p>Hydraulic dredging or other techniques that minimize the dispersal and broadcast of bottom materials are preferred over agitation forms of dredging. Curtains and other appropriate mechanisms must be used to minimize widespread dispersal of sediments and other dredge materials.</p> <p>Dredging and excavation must be scheduled at times having the least impact to fish spawning, nesting patterns, and other identified natural processes.</p>
Shoreline Restoration	Restoration activities are ongoing throughout the County, with a focus on the Yakima River and its tributaries,	A variety of shoreline restoration projects are planned throughout the County, primarily along the Yakima River and its tributaries. Planned new projects are documented in the Draft Shoreline Restoration Plan (ESA,	Restoration activities would result in improvement to shoreline ecological functions.	Restoration is permitted in all SEDs. Restoration must be carried out in accordance with a County or resource agency-approved restoration plan and in accordance with the policies and regulations of the Shoreline Master

Use / Development Type	Existing Development	Expected Type and Location of Future Development	Potential Impacts of Future Development on Shoreline Ecological Functions (water quality, habitat, hydrology)	SMP Protective Standards
		2013b)		<p>Program.</p> <p>All shoreline restoration and enhancement projects must protect the integrity of adjacent natural resources, including aquatic habitats and water quality, and must not result in significant adverse changes to ecological functions, processes or properties.</p> <p>Restoration projects must be monitored and maintained to ensure they achieve their intended restoration goals. The project proponent must assess and document each restoration project according to the requirements prescribed by the applicable authorizing or funding agency. The project proponent is responsible for implementing corrective actions as needed to ensure the project's ecological benefits are sustainable over time.</p>

CHAPTER 4. BENEFICIAL EFFECTS OF ESTABLISHED PROGRAMS

A variety of other regulatory programs, plans, and policies work in concert with the Kittitas County SMP to manage shoreline resources and regulate development near the shoreline.

4.1 Local Plans and Regulations

4.1.1 Kittitas County Comprehensive Plan

The *Kittitas County Comprehensive Plan* was updated in 2013 (Kittitas County, 2013). It contains goals, policies, and strategies for protection of the County's environmental resources. Several "land use categories" are described in the plan. These categories serve as the basis for more detailed zoning code designations. Land use categories for Kittitas County are as follows:

- Resource – includes Commercial Agriculture, Commercial Forest and Mineral Resource Lands
- Rural – includes Rural Residential, Rural Working, Rural Recreation and LAMIRDS
- Urban – includes urban designations

During the development of SEDs as part of this SMP update process, Comprehensive Plan designations were examined to determine planned future uses and whether they would be in general alignment with existing shoreline ecological functions. Generally speaking, the Comprehensive Plan designations generally aligned with the findings of the ICR (ESA, 2013a). Regulating the type and location of land uses in Kittitas County ensures that development occurs in areas that would result in minimal impacts to existing shoreline ecological functions.

4.1.2 Flood hazard management

The Kittitas County area has significant exposure to numerous natural hazards that have caused millions of dollars in past damage. Limited local resources make it difficult to be pre-emptive in risk reduction initiatives and being able to leverage federal financial assistance is paramount to successful hazard mitigation in the area. In an effort to be proactive in preparedness for the impacts of natural hazards, Kittitas County and partners developed the *Kittitas County Multi-Jurisdictional Hazard Mitigation Plan* (Tetra Tech 2012), which was approved by the Washington Military Emergency Management Division and the Federal Emergency Management Agency on July 27, 2012. The plan identifies resources, information, and strategies for reducing risk from natural hazards.

The plan addresses the following hazards of concern: avalanche, dam failure, drought, earthquake, flood, landslide, severe weather, volcano, and wildfire. The hazard mitigation

plan will work together with the County's adopted Comprehensive Plan, CAO and SMP regulations to support wise land use in the future by providing vital information on the risk associated with natural hazards in Kittitas County. In addition, municipal planning partners (i.e., cities within and adjacent to Kittitas County) will seek to incorporate by reference the *Kittitas County Hazard Mitigation Plan* in their comprehensive plans. This will assure that all future trends in development can be established with the benefits of the information on risk and vulnerability to natural hazards.

Recently, the County formed the Flood Control Zone District (FCZD), which is funded through property taxes. The collected funds will be used to fund flood-related projects and programs within the County.

4.1.3 KCC Chapter 13.04 On-site Sewage Disposal Systems

The purpose of Chapter 13.04 is to assure protection of public health by regulating the installation of new on-site sewage disposal systems or the alteration, extension, or relocation of an existing system. The chapter includes provisions for the design, installation, and management requirements to accommodate effective treatment and disposal of sewage on a long-term basis, and enhancing protection of environmentally sensitive areas within Kittitas County.

4.1.4 KCC Chapter 14.08 Flood Damage Prevention

The purpose of Chapter 14.08 of the KCC is to protect human life and health, minimize public expenditure for costly flood control and flood relief projects, rescue and relief efforts, business interruptions, and damage to public facilities and utilities. It is also meant to implement regulations regarding areas of special flood hazard to minimize future flood blight areas and to maintain the County's eligibility to participate in the National Flood Insurance Program. In order to accomplish its purpose, this chapter includes methods and provisions for: restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities; requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction; controlling the alteration of natural floodplains, stream channels and natural protective barriers which help accommodate or channel floodwaters; controlling filling, grading, dredging and other development which may increase flood damage; and preventing or regulating the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas. Chapter 14.08 outlines specific requirements, construction procedures, permitting and requirements for the development of lands located within areas subject to flood hazard.

4.1.5 KCC Chapter 15.04 State Environmental Policy Act

Most projects requiring a shoreline permit must also demonstrate compliance with the State Environmental Policy Act (SEPA). The SEPA process assures that environmental impacts, including compliance with SMP regulations, are identified, minimized and

mitigated, where possible. The County adopts the state's SEPA rules by reference (Chapter 197-11 WAC). Chapter 15.04 outlines general SEPA requirements, threshold determinations, public notice and comment, categorical exemptions, and agency compliance.

4.1.6 KCC Title 17 Zoning

The purpose of Title 17 is to provide zoning standards that direct uses, building bulk, scale, and location, and other design considerations throughout the County. A subsection of the chapter, Title 17A Critical Areas, includes provisions for designating and protecting critical areas. Critical areas include (1) wetlands; (2) areas with a critical recharging effect on aquifers used for potable water; (3) fish and wildlife habitat conservation areas; (4) frequently flooded areas; and (5) geologically hazardous areas.

4.1.7 Benefits of Local Regulations

Various sections of the KCC regulate development in ways that benefits the County's diverse shoreline environments. Regulations are focused on protecting public health through the proper treatment and disposal of sewage, flood damage prevention, clearing and grading activities as described in zoning code, land use and development standards including management of environmentally critical areas.

4.2 Voluntary programs

4.2.1 Rural stewardship plan

In 2011, Kittitas County elected to participate in the Voluntary Stewardship Program (VSP) (RCW 36.70A.705) for the protection of critical areas in areas of agricultural activities. Implementation of the program is not required until adequate State funding is available, which is still pending as of the writing of this report. The VSP is intended to address the protection of natural resources while maintaining and enhancing the viability of agriculture. If implemented, agricultural operators with critical areas on their land would have the option of agreeing to create an individualized stewardship plan in cooperation with the watershed group formed to implement the program..

4.3 State and Federal Regulations

A number of state and federal agencies may have jurisdiction over land or natural elements in shoreline jurisdiction. Local development proposals most commonly trigger requirements for state or federal permits when they propose work in or over waters of the state; impact wetlands or streams; potentially affect fish and wildlife listed under the federal Endangered Species Act (ESA); result in over one acre of clearing and grading; or affect the floodplain or floodway. As with local requirements, state and federal regulations may apply throughout the jurisdiction, but regulated resources are common within the City's shoreline jurisdiction. The most commonly applied state and federal regulations protecting shoreline-related resources are described briefly below.

4.3.1 Endangered Species Act

The federal ESA addresses the protection and recovery of federally listed species. The ESA is jointly administered by the National Oceanic and Atmospheric Administration (NOAA) Fisheries (formerly referred to as the National Marine Fisheries Service), and the United States Fish and Wildlife Service (USFWS).

4.3.2 Clean Water Act

The federal CWA requires states to set standards for the protection of water quality for various parameters, and it regulates fill, excavation, and dredging in waters of the U.S., including wetlands. Certain activities affecting wetlands in shoreline jurisdiction or work in the adjacent rivers may require a permit from the U.S. Army Corps of Engineers and/or Washington State Department of Ecology under Section 404 and Section 401 of the CWA, respectively.

4.3.3 National Flood Insurance Program

Communities that participate in the National Flood Insurance Program receive federally backed flood insurance. In order to participate, a community must adopt and enforce floodplain management regulations to reduce future flood damage. The Federal Emergency Management Agency is responsible for mapping the country's flood hazard areas.

4.3.4 Hydraulic Project Approval

The Washington Department of Fish and Wildlife (WDFW) regulates activities that use, divert, obstruct, or change the natural flow of the beds or banks of waters of the state and which may affect fish habitat. Projects in the shoreline jurisdiction requiring construction below the ordinary high water mark could require an HPA from WDFW. Projects creating new impervious surface that could substantially increase stormwater runoff to waters of the state may also require approval.

4.3.5 Rivers and Harbors Act

Any work or project that may affect or obstruct navigable waters requires a Section 10 permit under the Rivers and Harbors Appropriation Act of 1899. The U.S. Army Corps of Engineers reviews and authorizes projects with either a standard individual permit, letter-of-permission, nationwide permit, or regional permit.

4.3.6 National Pollutant Discharge Elimination System (NPDES)

Ecology regulates activities that result in wastewater discharges to surface water from industrial facilities or municipal wastewater treatment plants. NPDES permits are also required for stormwater discharges from industrial facilities, construction sites of one or more acres, and municipal stormwater systems that serve census-defined Urbanized Areas (more than 50,000 people and population densities greater than 1,000 per square mile).

4.3.7 Forest Practices Act

The Washington Forest Practices Act of 1974 (RCW 76.09) regulates activities that relate to growing, harvesting, or processing timber. The Forest Practices Board is an independent state agency that defines rules and regulations for forest practices. The rules are designed to protect public and natural resources such as water quality and fish habitat. By requiring harvesters to implement a reforestation plan, natural resources are protected while maintaining a viable timber industry. The Washington Department of Natural Resources (WDNR) administers the publication of the Forest Practices Board rules, along with guidance and other technical information. Specific rules involving water quality protection must be approved by Ecology prior to Forest Practices Board adoption.

Operators of lands covered under the Forest Practices Act must file a notice of intent to convert to a non-forestry use with WDNR. The notice is then forwarded to the local jurisdiction, which has the authority to approve or deny associated development permits based on compliance with the provisions of the original application for forest practices.

The Forest Practices Act directs counties that are planning under the Growth Management Act to adopt and enforce ordinances and regulations for forest practices within their jurisdiction. The Shoreline Management Act defers management of forest lands to the Forest Practices Act in that harvest activities are not subject to SMP regulations. Regulations for forest practices within the shoreline jurisdiction may not be more restrictive than those provided by the Forest Practices Act, except for the proposed conversion to non-forest land uses (RCW 90.58.030(2)(d)(ii)).

4.3.8 Benefits of State and Federal Regulations

Regulations focused on preserving in-stream water quality, quantity, and habitat integrity include the Clean Water Act, the Hydraulic Project Approval, the Rivers and Harbors Act, and the National Pollutant Discharge Elimination System. These regulations require that any development or redevelopment must comply with protocol for avoiding or mitigating impacts to streams, creeks, rivers, lakes, wetlands, or other water bodies. For example, projects that will require in-channel work must comply with the protocol of the Hydraulic Project Approval process in addition to the Clean Water Act. In addition, the Endangered Species Act provides a framework for the preservation of endangered or threatened flora, fauna, or fish species and their associated habitat areas. This overarching regulation must be considered for federal projects or projects with a federal nexus (projects funded with federal money or take place on federal lands) that may adversely impact priority species habitat. Forest Practices Act provides regulations for the clearing of forest within the County, including along shorelines.

The Federal Emergency Management Agency National Flood Insurance Program and the Rivers and Harbors Act address the removal of materials that may exacerbate flood conditions, and/or provide assistance in development or redevelopment in areas subjected to flooding. In addition to protecting public health and property, these measures also assist in promoting preservation and restoration of floodplain habitat.

CHAPTER 5. RESTORATION EFFORTS

Steps are being taken to restore habitats for the benefit of fish and wildlife. Several entities are currently supporting preservation and restoration of shorelines within Kittitas County, including:

- Kittitas County Conservation District
- Washington State Department of Ecology
- U.S. Department of Reclamation
- Forterra
- Kittitas Conservation Trust
- Yakama Nation
- Mid-Columbia Fisheries Enhancement Group

Many of the habitat restoration projects currently underway target listed salmonid species and are designed specifically to benefit fish habitat.

5.1 Shoreline Restoration Opportunities

The draft Shoreline Restoration Plan (ESA, 2013b) identifies a variety of planned and potential shoreline restoration opportunities within Kittitas County. The majority of these opportunities are focused within the Yakima River basin, which has been a high priority for restoration since mid-Columbia Chinook salmon were listed as “threatened” under the Endangered Species Act. Types of restoration projects that have been identified in the Restoration Plan are:

- Instream flow improvement
- Fish passage (removal of barriers and construction of passage facilities)
- Protection of high-quality floodplain habitat
- Revegetation of riparian areas
- Installation of large woody debris in streams
- Removal or setback of levees
- Screening of irrigation diversions
- Stormwater treatment retrofits

- Decommissioning and revegetation of unused logging roads

CHAPTER 6. CONCLUSIONS

ESA has reviewed the Kittitas County Final Draft SMP (dated January 2014) according to the requirements in the shoreline guidelines to determine the potential for cumulative impacts. This analysis was guided by the three factors identified in the guidelines for evaluating cumulative impacts and no net loss:

- Assessment of current shoreline conditions;
- Reasonably foreseeable future development and use of the shoreline; and
- Beneficial effects of any established regulatory programs under other local, state, and federal laws.

The Final Draft SMP provides a comprehensive update to the existing SMP goals, policies, and regulations and establishes appropriate standards for the management of the County's shorelines consistent with the Shoreline Management Act and its implementing regulations. For example, the new shoreline environment designation system is consistent with the Ecology-recommended system (WAC 173-26-211) and was derived from the ICR (ESA, 2013a).

Further, the draft Kittitas County Shoreline Restoration Plan (ESA, 2013b) identifies restoration opportunities that could improve or restore ecological functions that have been impaired as a result of past development activities. Together, the Shoreline Restoration Plan and ICR document the existing conditions within County shoreline jurisdiction at the time of this SMP Update.

Based on review of the Final Draft SMP policies and regulations and our analysis of past shoreline development trends, and potential areas where future foreseeable development is anticipated, we contend that the Final Draft SMP will be effective in preventing cumulative impacts on water quality, habitat, and hydrology functions within County shoreline jurisdiction.

This analysis will need to be revised if substantial revisions are made to the policies and regulations proposed in the Kittitas County Final Draft SMP.

CHAPTER 7. REFERENCES

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Appendix A. Reach Analysis Tables

Appendix B. Build-Out Analysis Methodology

A GIS analysis was conducted as part of the CIA to document the reasonable and foreseeable development that may occur within Kittitas County shoreline jurisdiction. The results of the analysis provides a geospatial tool for understanding development patterns along the shoreline in combination with the results of the ICR (ESA, 2013a).

For the build-out analysis, the SMA shoreline jurisdiction area was intersected with the Kittitas County Assessors records (2013) to identify parcels located within shoreline jurisdiction. The shoreline parcels were then intersected with the current County zoning map (adopted February 2013), and sorted into the following categories:

- Vacant dividable
- Occupied dividable
- Vacant non-dividable
- Commercial and industrial
- Resource
- Agricultural
- Ineligible
- Built Out

Parcels categorized as “vacant dividable,” “occupied dividable,” “vacant non-dividable,” and “commercial and industrial” were determined to have potential for reasonable and foreseeable future development.

Parcels categorized as vacant dividable and occupied dividable are located in residential zoning districts, or other zoning districts that allow residential development and subdivision with a minimum lot size of 5 acres or less (e.g., ‘Agriculture-5’). Parcels with an assessed improvement value of \$10,000 or more were assumed to contain an existing single-family residence, while parcels with an improvement value of less than \$10,000 were assumed to be vacant. Subdivision potential was calculated by dividing the total acreage of the parcel by the minimum lot size. For occupied dividable parcels, one dwelling unit/lot was subtracted from the total.

Parcels categorized as vacant non-dividable are located within residential zoning districts and have an assessed improvement value of less \$10,000, and thus were assumed to lack an existing residence. Existing lots less than 10 acres in area within agricultural and resource zoning districts, with an assessed improvement value of less than \$10,000, were also categorized as vacant non-dividable as these lots are likely to develop with residences in the future.

Parcels within commercial and industrial zoning districts were categorized as “commercial and industrial.” This category is relatively rare within shoreline jurisdiction. Development potential on these parcels was assessed qualitatively, using air photo interpretation and assessed improvement value data. Commercial and industrial parcels that appeared to have little to no existing development were determined to have development or redevelopment potential.

Parcels zoned as Commercial Forest or Forest and Range were categorized as “Resource,” and parcels within agricultural zoning districts (with the exception of ‘Agriculture-5 and Agriculture-3’) were categorized as “Agricultural.” Residential development is allowed within these zoning districts, but only at very low densities (one residence per 20 acres or greater). For this analysis, it was assumed that the existing resource and agricultural uses on these parcels will continue, and that they will not significantly develop with residences.

“Ineligible” parcels were removed from the build-out analysis. These included parcels that are 100% covered by mapped critical areas (i.e. wetlands FEMA floodway, and steep slopes) and publically-owned parcels (e.g. National Forest land, County parks, and WDFW wildlife areas).

Parcels categorized as “built out” have \$10,000 or greater in improvement value, and are not eligible for subdivision according to their zoning district.