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memorandum

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to Lara Thomas and Ben Swanson, City of Duvall

from Aaron Booy and Margaret Clancy, ESA

subject City of Duvall Shoreline Master Program Update, Draft No Net Loss Summary

Introduction

The purpose of this memo is to document how the City of Duvall's Draft Shoreline Master Program (SMP) (November 2012) achieves "no net loss" of shoreline ecological functions. This summary is based on the conclusions of the City of Duvall Cumulative Impacts Analysis which was an assessment of the following:

- The analysis of baseline conditions from the Shoreline Inventory and Characterization Report (June 2011);
- The goals, policies, and regulations of the Draft SMP (November 2012); together with
- The proposed measures in the Shoreline Restoration Plan (October 2011).

The Cumulative Impacts Analysis considered each of these key components of the City's comprehensive SMP update to evaluate and assess how ecological functions for the Snoqualmie River shoreline might be expected to perform as development occurs over the next twenty years.

The goal of protecting shoreline ecological functions has been rooted in the Shoreline Management Act since its enactment by the citizens of the state of Washington in 1971. The Act states that "permitted uses in the shoreline shall be designed and conducted in a manner that minimizes in so far as practical, any resultant damage to the ecology and environment of the shoreline area…" (WAC 173-26-176[2]). The concept was translated into the goals, policies, and governing principles of Ecology's guidelines for updating local SMPs and was recently codified in state law as a "no net loss" mandate. No net loss is standard intended to ensure that shoreline development or uses, whether permitted or exempt, are located and designed to avoid loss or degradation of shoreline ecological functions. The standard is met when proposed uses or developments are in compliance with the provisions of this master program. In cases where unavoidable loss results from allowed uses or developments, the standard is met through appropriate mitigation, consistent with the provisions of this master program.

"No net loss" is primarily achieved primarily through regulatory mechanisms (including mitigation requirements in the SMP), but restoration incentives and voluntary actions are also critical to achieving the "no net loss" goal.

Baseline Conditions of the Snoqualmie River within Duvall

The City of Duvall is located in northeastern King County along the eastern shoreline of the Snoqualmie River. The total length of Snoqualmie River shoreline within the municipal boundary of the City is approximately 1.5 miles.

The Snoqualmie River through the City is incised into the alluvial valley. During normal flows, the river is a low energy system characterized as a glide stream environment with a relatively slow flow rate and no pooling or riffle area. The Snoqualmie River riparian corridor is characterized by a steep bank (due to the incised river) backed generally by a narrow deciduous forest corridor. The bank is vegetated with deciduous trees and shrubs with Himalayan blackberry as the dominant (invasive) shrub growing along most of the bank. The forested riparian corridor ranges from 20 to 30 feet wide at the south end of the City to 50 to 150 feet wide within portions of McCormick Park and Taylor's Landing.

During significant flood events, the Snoqualmie River engages much of the valley including the majority of the City's shoreline area. The floodway extends from the river to the Snoqualmie Valley Trail through the wide, southern half of the City's shoreline, and narrows through the vicinity of Depot Village / Taylor's Landing reach.

The eastern Snoqualmie River floodplain was primarily used for agricultural activities though the first half of the 1900s. Currently, Duvall shoreline area is largely publicly owned open space and park lands, with limited development other than trails, some of which serve as access roads for utility maintenance and restoration activities.

Snoqualmie River in the vicinity of the City supports several salmonid species, including Chinook salmon (federally listed as threatened), coho salmon, chum salmon, pink salmon, sockeye salmon, bull trout/Dolly Varden (federally listed as threatened), and steelhead (federally listed as threatened) (Map 5 within the 2011 Inventory and Characterization). For all of these species, the mainstem river is used as a migratory corridor and habitat for juvenile rearing and outmigration (see ESA, 2011 for more information). Due to the incised channel and lack of habitat complexity and/or significant overhanging vegetation, spawning habitat in the Snoqualmie River throughout the City is limited.

The lower reaches of two streams, Thayer and Coe-Clemons Creeks, drain across the Snoqualmie River floodplain within Duvall's shoreline jurisdiction. East of the floodplain the two streams and associated tributaries drain the majority of the developed city, with significant portions of the drainage network altered as part of the urban stormwater system. Immediately upstream of Main Street, Coe-Clemmons Creek drains through a ravine with significant bank failure and erosion issues. This has resulted in significant sediment deposition within Duvall's shoreline jurisdiction, primarily within associated wetland areas between Main Street and the Snoqualmie Valley Trail. Wetlands within shoreline jurisdiction are primarily associated with these streams, resulting in large depressional wetland both east and west of the Snoqualmie Valley trail. Outside of these tributary areas within McCormick Park and contiguous area, much of the shoreline area is dominated by relatively coarse soils that allow for rapid infiltration and percolation, which prevents development of wetland conditions. Mapped salmonid use of tributary streams within the City is limited to the presence / migration of coho salmon within lower Coe-Clemons and Thayer Creeks (for both streams, fish passage barriers occur at and upstream of Main Street (culverts).

Elevated temperature levels have been cited as a key concern for the Snoqualmie River and within floodplain tributary streams (ESA, 2011). Immediately north of Duvall, the Cherry Creek tributary system has documented temperature impairment. The tributary streams within Duvall likely do not contribute significantly to mainstem water quality impairment; however lack of riparian cover and surface ponding, including the large surface water pond (Beaver Pond) associated with Coe-Clemmons Creek, are potential target areas for this water quality concern. Riparian conditions along the Snoqualmie are also degraded through some areas of the City, including much of McCormick Park.

The Snoqualmie Valley Trail, a regionally significant facility linking Duvall with Fall City and beyond, runs north-south through the floodplain in Duvall. The trail is built on the abandoned railroad corridor on a fill berm elevated 8 to 12 feet above the adjacent floodplain (see Map 8b within the Inventory and Characterization Map); the trail and associated berm significantly alter the interaction of the river and the floodplain during overbank flood events. The railroad corridor berm separates floodplain wetland areas that were historically linked, and constricts tributary streams to culverts and bridge crossings.

Other significant uses of the City's shoreline area include utility corridors the Depot Village mobile home residential community and the Duvall park-and-ride facility between Depot Park and Taylor's Landing, both east of the railroad tracks. Existing utilities are known to include stormwater outfall corridors, a wastewater outfall corridor, a gas main under the river at Woodinville—Duvall Road, and high-voltage overhead electrical corridors.

Chapter 6 of the Inventory and Characterization (ESA, 2011) describes existing impairments to key shoreline processes. Many of the most significant impairments to key processes are related to past land clearing and tributary channelization for agricultural use, construction of the railroad berm. Hydrologic and water quality processes are also at risk from future development occurring outside of shoreline jurisdiction (commercial and residential uses and development along Main Street and areas to the east throughout the City). See Inventory and Characterization Table 6-1 and the *Summary of Ecological Functions and Management Issues* for each of the inventoried shoreline reaches in Section 6.2.

Reasonably Foreseeable Future Development

The City has issued fewer than four shoreline substantial development permits in the last decade, and very few exempt shoreline development projects have occurred during this timeframe. The majority of the shoreline area is publicly owned; as such private development has been extremely limited. Substantial development permits have been issued for relatively small parks development projects involving enhancement of McCormick Park and Depot Park facilities, and for construction of utility easements (primarily stormwater) through the shoreline environment. Consistent with this development history, as well as ongoing public ownership of the shoreline for recreation and open spaces uses, the City anticipates very little future development within the shoreline area. As noted throughout the Cumulative Impacts Assessment (ESA, 2012), the types of existing and future development in the City's shoreline area are additionally limited due to the hazards associated with the Snoqualmie River floodplain – including channel migration hazards and designated floodway.

Future development within shoreline jurisdiction is likely to include improvements to McCormick Park, Depot Park, and Taylor's Landing as identified in the City's Parks, Trails and Open Space Plan. Proposed improvements may include refurbishment and development of water-dependent uses, specifically boat launches and other water-related recreational access facilities. None of these water-dependent/water-related projects are anticipated for the near future, as no funding is secured or imminent. Foreseeable public recreation improvements include smaller projects to upgrade and enhance existing park facilities – including trails, lawn areas, picnic structures, and benches. These activities will not require modification of the Snoqualmie shoreline, and would occur consistent with riparian buffers prescribed in the proposed SMP.

Duvall has prioritized conservation and restoration of publicly owned shoreline areas and has undertaken comprehensive stream habitat restoration planning (Herrera, 2002). The City is currently implementing several mitigation /restoration projects within the shoreline planning area (ESA Adolfson, 2009) to improve riparian cover and wetland conditions along the lower reaches of Coe-Clemmons Creek.

Limited new utility uses within the shoreline planning area are anticipated in the near future. Duvall Public Works maintains the municipal wastewater effluent conveyance and outfall; no expansions or changes to this facility are anticipated within the next decade. Any new utilities would be primarily associated with stormwater conveyance and discharge (discharge from developing areas along the Main Street corridor treated and conveyed to natural flow pathways within shoreline jurisdiction, consistent with City Surfacewater and proposed SMP standards).

Cumulative Impacts Assessment

An analysis of cumulative impacts was first conducted in August 2011 based on the June 2011 Preliminary Draft SMP. A preliminary finding of no net loss to shoreline ecological functions was made at that time. However, since then, the Draft SMP has been refined with extensive input

1. Changes were intended to allow for existing and anticipated uses and improvements to public access with the desire to improve ecological conditions (and in doing so, achieving or exceeding no net loss).

In May 2012, the City made the Advisory Committee Recommended Draft SMP available for public review and comment (Advisory Committee Recommended Draft SMP, May 2012). The Advisory Committee Recommended Draft SMP was further updated in November 2012 to reflect changes made in response to Department of Ecology comments dated October 31, 2012. The analysis provided below has been updated to reflect this current version of the Advisory Committee Recommended Draft SMP (May 2012, updated November 2012).

As noted throughout the Cumulative Impacts Assessment (ESA, 2012) the types of existing and future development in the City's shoreline area are severely limited because of the hazards associated with the Snoqualmie River floodplain – including channel migration hazards and designated floodway.

Given the limited anticipated future uses and development within the Duvall shoreline jurisdiction, the regulatory provisions of the Draft SMP will serve to at a minimum maintain, and likely improve the overall condition of shoreline processes and associated functions and resources. The proposed SMP provides a new system of shoreline environment designations that establishes more uniform management of the City's shoreline. The updated development standards and regulation of shoreline modifications provides more protection for shoreline processes. The updated standards and regulations are more restrictive of activities that would result in adverse impacts to the shoreline environment, including creation of new impervious surfaces, a wider riparian buffer for South McCormick Park, limitations on construction of new shoreline stabilization, and more limits on allowances for development within riparian areas and wetland buffers (Table 1, included as Table 2 within the Draft SMP). In addition, the SMP will compliment and work consistently with other City, King County, state and federal efforts to protect shoreline functions and values (see the Cumulative Impacts Analysis and Shoreline Restoration Plan for additional details).

[1] Input on the Preliminary Draft SMP came from multiple sources, including Shoreline Advisory Group comment (Duvall Public Works staff, an owner of private property within the shoreline, a regional environmental group, City Planning Commission and City Council representatives, King County representation, and Ecology representation), review opportunity for neighboring Native American tribes, public comment, City Planning Commission review and input, and City Council review and input

Table 1. Impervious Surface and Minimum Riparian Zone Standards

Bulk Dimensional and Vegetation Standards	South McCormick Park Passive Recreation and Conservancy	N. McCormick Public Recreation / Taylor's Landing Public Recreation	Riverside Village
Maximum Impervious Surface Coverage[2]	10%	25%	60%
Minimum Riparian Zone[3]	200 feet (additional 50 feet beyond DMC 14.42)	150 feet (Consistent with DMC 14.42.320)	West of existing SVT (Consistent with DMC 14.42.320)

The Shoreline Restoration Plan establishes and prioritizes realistic goals and objectives for restoration of the Snoqualmie River shoreline area. While recognizing substantial limitations to implementing restoration plans (scarcity of funding, project permitting challenges, and dealing with impairments that extend well beyond Duvall), the Plan provides a useful tool for maximizing the amount and success potential of restoration actions in the coming decade. Past and ongoing restoration efforts lead and/or supported by the City verify the commitment and ability that City staff and the Duvall community will bring toward implementing goals, priorities, potential projects and programs included in the Restoration Plan.

Therefore, when reasonably foreseeable shoreline developments are considered together with the policies and regulations in the Draft SMP and other beneficial plan and programs, there would likely be no loss of ecological functions from the level established in the Shoreline Inventory and Characterization Report (ESA, 2011). Conclusions on the future performance of the key shoreline processes are summarized as follows:

[2] Determined for each lot of record; maximum impervious surface coverage shall be increased in the South McCormick Park, North McCormick Park, Riverside Village, and Taylor's Landing shoreline environments when Snoqualmie River riparian restoration is provided; see Section 4.1 of this Program for impervious surface regulations.

[3] The Minimum Riparian Zone is proposed as the area landward of the Snoqualmie River OHWM to be maintained / enhanced with native riparian vegetation.

Hydrology, including flow regime, sediment transport, and floodplain interaction. *WAC 173-26-201(3)(d)(i)(C)*	**Water Quality,** including retention of particulates, nutrient cycling, pathogens, delivery movement, and loss. *WAC 173-26-201(3)(d)(i)(C)*	**Large Woody Debris, Organics and Habitat**, including maintenance of characteristic plant communities and sources of large woody debris (LWD). *WAC 173-26-201(3)(d)(i)(C)*
No Change or Potential Improvement Wetland habitat will be protected from development through the Sensitive Areas requirements in the proposed SMP. Impervious surface limits are established throughout shoreline jurisdiction, minimizing potential impacts to water flow, whether during flood events or base flow conditions. Future development with the greatest potential to impact hydrology will occur outside of shoreline jurisdiction (commercial areas along Main Street and residential uses extending east through the City). The Draft SMP and Restoration Plan encourage use of LID techniques throughout the City, and pending updates to stormwater standards would elevate requirements for use of LID. Riparian and bank conditions along the mainstem Snoqualmie River and tributary streams will be maintained and enhanced as restoration actions occur. The City is currently using King Conservation District grant funding to improve riparian conditions on lower Coe-Clemmons Creek – with shoreline jurisdiction. This restoration effort builds on previous efforts that have occurred over the last decade, and verifies the City's commitment to implement the Shoreline Restoration Plan.	**Likely Improvement** Water quality will likely not be degraded by new development (both within shoreline jurisdiction, and more significantly throughout the contributing, upslope area of the City) since applicants would be required to meet stormwater management standards and develop an erosion and sedimentation control program. (SMP 4.5.2, Regulation 1 for areas within shoreline jurisdiction; DMC 9.06) Restoration activities occurring within the Snoqualmie River floodplain should enhance wetland areas, improving associated water quality functions. Temperature levels have been cited as a key concern for the Snoqualmie and within floodplain tributary streams. Required riparian buffers (Table 1) and wetland protections will improve shading over time – although restoration will not be triggered by mitigation for immediately adjacent development, the City's incorporated Sensitive Areas regulations (DMC 14.42) provide allowances for offsite mitigation, which the City may choose to focus (where appropriate) in high priority areas within shoreline jurisdiction. Further, the City will target; the Restoration Plan prioritizes actions to address elevated surface water temperatures, and identifies focus areas for additional study and specific actions aimed at this water quality impairment.	**Likely Improvement** Establishing a riparian management zone for non-water-dependent uses will result in the protection of existing vegetation and habitat resulting in no change and long term improvement of LWD recruitment and other riparian habitat functions. Enhanced riparian conditions will benefit the numerous salmon populations that use the river for migration and/or juvenile rearing. Although limited development is anticipated within shoreline jurisdiction, the system of SEDs focuses higher intensity uses to specific areas (primarily North McCormick Park and Riverside Village, where more intense uses and associated infrastructure already occur). the updated SMP requires a CUP for new structural shoreline stabilization and significantly limits where such modification could occur (requiring a preference for biostabilization approaches whenever stabilization would be allowed; only allowing stabilization to protect existing public uses and/or water-dependent uses) (SMP 5.1.2, . Incorporation of the Sensitive Areas regulations will ensure protection of existing associated wetland and tributary stream habitats. Restoration of these habitats will occur over time consistent with the Shoreline Restoration Plan. As detailed in the 'hydrology' column, the City has partnered and/or lead restoration actions within shoreline jurisdiction over the last 10+ years; this verifies the City's commitment to implement the Shoreline Restoration Plan.

Conclusion

The baseline conditions of ecological functions and processes in the Duvall Shoreline Inventory and Characterization Report were used as the basis for decisions made throughout the City's SMP update process. The inventory was integral to the development of the shoreline environment designations, informed goal and policy development, led to the establishment of protective regulations in the City's SMP, set a foundation for the objectives and priorities set in the Shoreline Restoration Plan, and shaped the conclusions of the cumulative impact analysis.

Based on the combination of restoration actions, preservation of existing ecological functions in the city and the regulatory provisions of the Draft SMP, no net loss of shoreline ecological functions from existing baseline conditions is anticipated.