

APPENDIX F

UNDERSTANDING RURAL STEWARDSHIP PLANNING: Aquatic Area Buffer Guidance and Flexibility

The 2004 Critical Areas Ordinance (effective Jan 1, 2005) and companion regulations (clearing and grading and surface water management) provide a prescriptive set of standards to protect critical areas. It is recognized, however, that these standards may not account for a given parcel's buffer conditions and ecological values and context. Therefore, the Rural Stewardship Program (RSP) was created to provide landowners an opportunity to enter into a formal, legally-binding process to tailor aquatic area buffer and clearing restrictions to each parcel based on detailed local information. Specifically, there may be trade-offs between these restrictions that make sense ecologically and better meet a landowners' goals. For example, because headwater stream channels are smaller in size and more influenced by localized changes in hydrology than larger stream channels downstream of headwater areas, a scientifically-rational tradeoff would be smaller buffers in exchange for greater hydrologic protection through retention of mature forests.

Although reduced buffers or clearing restrictions are a commonly desired goal of an applicant, the RSP's goal is not to reduce these standards. Rather, the RSP must find a solution that is at least as effective as the prescriptive pathway at protecting ecological values and functions and that preferably improves a given parcel's ecological condition. To provide a rational and consistent basis for these decisions, the Program gains an understanding of a parcel's ecological functions and values using measures of parcel conditions and basin context. This information is then used to determine where flexibility in regulatory standards is possible. If the standard buffer or clearing restriction is larger than necessary given the more detailed information on parcel condition, ecological values and land use context, the restrictions may be modified to better meet a landowner's needs.

Specifically, the Program uses a 2004 GIS assessment of freshwater basin and marine shoreline drift cell condition and then applies information on a parcel's location and current buffer condition (note: condition must be the result of permitted actions). RSP guidance tables summarize how these conditions may inform decisions on buffer widths and clearing restrictions for each aquatic area type. The following describes each of the parameters considered in the tables.

Subbasin / Shoreline Condition:

A coarse screen filter using 2004 existing information on geographic information system (GIS) databases was used to evaluate freshwater catchments (total of 510) and marine drift cells (total of 61) within King County. For each area, a series of indicators describing biological values and human constraints were assessed. From this information a condition rating was derived. The result of this work was the Basin and Shoreline Conditions Map, described in KCC 21A.24.065 and posted at <http://www.metrokc.gov/ddes/cao/>. Details on criteria and scoring are described in a white paper drafted September 14, 2004 "Critical Areas Ordinances Companion Paper: Approach for Developing Basin and Shoreline Conditions Map: . "Subbasin Condition" and "Shoreline Condition" were rated as "high", "medium" or "low" using the following criteria:

1. Subbasin Condition mapped for freshwater basins (Moderate to high values of salmon use, vegetative rating and road density scores were multiplied by three to weight the importance of those factors).

A. Indicators of biological value:

- the presence, type and amount of use by chinook salmon and bull trout, both of which were listed as threatened under the federal endangered species act (ESA), and also by coho salmon, chum salmon and cutthroat trout as indicators of use and value for non-listed salmon species¹;
- number of acres of mapped category I wetlands;
- amount of forest cover;
- presence of mapped wildlife habitat network; and
- h. presence of or proximity to mapped priority species nests or breeding habitat

B. Indicators of human constraint:

- b. total impervious surface area;
- d. road density
- e. land use context, i.e., the type and intensity of land use in adjacent basins;

2. Shoreline Condition mapped for marine shoreline drift cells (no weighting was used):

A. Indicators of biological value:

- presence and amount of forage fish, such as surf smelt and sand lance and the extent of their spawning sites within the drift cell;
- length and percentage of cell without eelgrass, with patchy eelgrass and with continuous eelgrass;
- the amount and type of forest cover;
- presence and amount of large woody debris and drift logs;
- number of marsh areas present and length and percentage of cell within marsh habitat;
- length and percentage of cell within important bird area; and
- length and percentage of cell within marine reserve. (Ord. 15051 § 141, 2004).

B. Indicators of human constraint:

- length and percentage of cell with low, moderate and high impervious surface;
- length and percentage of cell armored and unstable slope armored
- number of docks, piers, groins, jetties, breakwaters and boat ramps;

3. The “high”, “medium” and “low” ratings for subbasin in shoreline condition can be generally characterized as follows:

A. High condition ratings are generally reflective of basins with low development intensity (e.g., substantial forest cover, low road density, low amounts of impervious surfaces, and low amounts armoring and structures along shorelines) and a significant biological

¹ On February 7, 2007, steelhead trout were added to the list of threatened species under the ESA; this assessment did not explicitly account for that change in status listing)

value (e.g., the presence or high use by critical species or the presence of rare, endangered or highly sensitive habitats).

B. Medium condition ratings are generally reflective of areas with either high or moderate development intensity and moderate or low insignificant biological value.

C. Low condition ratings are generally reflective of areas with high development intensity (e.g., low amounts of forest cover, high road density, significant amounts of impervious surfaces, and extensive amount of armoring and structures along shorelines) and a low biological value (e.g., the little presence or low use by critical species or little or no presence of rare, endangered or highly sensitive habitats).

Location in Basin

Although maintaining a high level of forest cover in all areas is beneficial, it has relatively more proximate and systemic hydrologic value in headwaters than in the downstream end of a subbasin. Thus, the location of a parcel within a catchment is a criterion for determining aquatic area buffers and associated clearing restrictions. Tributary catchments were delineated into upper (headwater, approximately sixty percent of the upstream area of a basin) and lower (downstream, non-headwater) areas for this purpose.

Existing Buffer Condition

For properties with designated aquatic areas, the existing buffer condition must be assessed:

- A. The buffer condition is considered moderate or better if:
 - 1) Structures and paved areas (e.g., legal permanent buildings, roads, septic systems) cover 5% or less of the total buffer area and at least 25% of the total buffer area is covered by a canopy of trees (woody plants at least 20 ft in height) or appropriate native vegetation, or
 - 2) There are no structures in the buffer and more than 25% of the total buffer area is covered by a canopy of trees or appropriate native vegetation.
 - 3) The buffer is not vegetated due to natural conditions (e.g., a steep feeder bluff or sand spit).
- B. The buffer condition is considered low if:
 - a) Structures and paved areas in the buffer cover more than 5% of the total buffer area, or
 - b) Less than 25% of the buffer area is covered by a canopy of trees or appropriate native vegetation.

Maximum Clearing

Maximum clearing allowed for a given parcel is dependent on basin condition and location, as well as buffer condition. It considers the existing condition of a property as well as proposed new clearing. Like codified clearing limits themselves, maximum clearing relative

to aquatic buffer flexibility is determined separately for parcels less than 5 acres and for parcels greater than or equal to 5 acres. On properties with more than one critical area, the larger clearing restriction will apply.

Freshwater basins:

Where a property is located in the upper regions (headwaters) of a high quality basin and the buffer condition is high, no flexibility to clearing or aquatic buffers would be allowed.

Generally speaking, while important everywhere, forest and other natural vegetation retention is most critical in basins of high condition (high biological value and low development intensity) or in the upper reaches of a basin to protect the health of downstream waters. For parcels in the lower reaches of a basin, where a particular property has less influence on the remainder of the catchment, more flexibility to clearing limits is reasonable.

Where a site/parcel is situated in the lower portion of a basin, the sites' existing buffer conditions are low condition (i.e., less than 25% forest cover and/or more than 5% impervious surfaces), and the basin condition is medium or low, RSP guidance would potentially allow up to 100% clearing, but require urban-level stormwater standards and no additional clearing in the buffer. This situation is expected to occur in very limited, highly degraded and very low biological value circumstances, e.g., a small stream in an intensely developed basin with no potential or only very low use by cutthroat trout and very little other biological value.

Marine shorelines:

Drift cells rated as high indicate a high level of natural processes functioning, and therefore clearing is undesirable. Though buffer flexibility might be allowed where the existing buffer condition is low, even less clearing would be allowed.

Where both the existing buffer condition and shoreline condition are low, additional clearing is seen as less of a risk to existing and potential ecological values and functions, and recommendations would therefore be determined on a site-by-site basis based on evaluation of hydrologic function (this is expressed in the guidance table as '100%*'). Regardless, this would apply to only the most degraded sites and no new clearing would be allowed in a critical area buffer.

Buffer Size

Rural Stewardship Aquatic Area Buffer Guidance provides no buffer flexibility where the subbasin or shoreline is considered to be of high biological value, a property is located in the upper reaches of a subbasin, and if the buffer condition is in high condition.

Where these conditions are not present, buffer flexibility is allowed dependent on each combination of factors and a thorough assessment of existing ecological condition but generally allowing less buffer flexibility where there is less forest cover, and more

flexibility where the condition is degraded by high intensity development and forest cover is limited.

**Table 1. Aquatic Areas Buffers and Clearing Restrictions
(Except Marine Shorelines)**

(Only site scenarios that warrant deviation from standard CAO buffer and clearing restriction requirements are included in this table.)

AQUATIC AREA TYPE	Subbasin Condition	Location in the Subbasin	Buffer Condition ¹	Maximum Clearing	Maximum Clearing	Buffer Size
	(MAPPED)	(MAPPED)		PARCELS >= 5 ACRES	PARCELS < 5 ACRES	
Type S or F	High	Upper	Low	25%	40%	125 feet
	High	Lower	Low	25%	40%	125 feet
	Medium	Upper	Low	25%	40%	125 feet
	High	Upper	Low	15%	30%	80 feet
	High	Lower	Low	15%	30%	80 feet
	Medium	Upper	Low	15%	30%	80 feet
	Medium	Lower	High	50%	65%	125 feet
	Low	Upper	High	50%	65%	125 feet
	Low	Upper	Low	50%	65%	125 feet
	Low	Lower	High	50%	65%	125 feet
	Medium	Lower	Low	100% ²	100% ²	80 feet
	Low	Lower	Low	100% ²	100% ²	80 feet
Type N	High	Upper	Low	25%	40%	50 feet
	High	Lower	Low	25%	40%	50 feet
	Medium	Upper	Low	25%	40%	50 feet
	High	Upper	Low	15%	30%	30 feet
	High	Lower	Low	15%	30%	30 feet
	Medium	Upper	Low	15%	30%	30 feet
	Medium	Lower	High	50%	65%	50 feet
	Low	Upper	High	50%	65%	50 feet
	Low	Upper	Low	50%	65%	50 feet
	Low	Lower	High	50%	65%	50 feet
	Medium	Lower	Low	100% *	100%*	30 feet
	Low	Lower	Low	100% *	100%*	30 feet
Type O	High	Upper	Low	25%	40%	20 feet
	High	Lower	Low	25%	40%	20 feet
	Medium	Upper	Low	25%	40%	20 feet
	High	Upper	Low	15%	30%	15 feet
	High	Lower	Low	15%	30%	15 feet
	Medium	Upper	Low	15%	30%	15 feet
	Medium	Lower	High	50%	65%	20 feet

	Low	Upper	High	50%	65%	20 feet
	Low	Upper	Low	50%	65%	20 feet
	Low	Lower	High	50%	65%	20 feet
	Medium	Lower	Low	100% *	100%*	15 feet
	Low	Lower	Low	100% *	100%*	15 feet

¹ **Aquatic Buffer Condition is determined as follows:**

- A.** The buffer condition is considered moderate or better if:
- Structures and paved areas (e.g., legal permanent buildings, roads, septic systems) cover 5% or less of the total buffer area and at least 25% of the total buffer area is covered by a canopy of trees (woody plants at least 20 ft in height) or appropriate native vegetation, or
 - There are no structures in the buffer and more than 25% of the total buffer area is covered by a canopy of trees or appropriate native vegetation.
 - The buffer is not vegetated due to natural conditions (e.g., a steep feeder bluff or sand spit).
- B.** The buffer condition is considered low if:
- Structures and paved areas in the buffer cover more than 5% of the total buffer area, or
 - Less than 25% of the buffer area is covered by a canopy of trees or appropriate native vegetation.

² **Must meet urban stormwater standards**

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Table 2. Marine Shoreline Aquatic Areas Buffers and Clearing Restrictions

All site scenarios are included in this table.

AQUATIC AREA TYPE	Shoreline Condition (MAPPED)	Buffer Condition	Maximum Clearing	Maximum Clearing	Buffer Size
			PARCELS >= 5 ACRES	PARCELS < 5 ACRES	
Type S (Marine Shorelines)	High	High	35%	50%	165
		Med	35%	50%	165
		Low	25%	40%	125
	Medium	High	50%	65%	165
		Med	50%	65%	125
		Low	100% ²	100% ²	125
	Low	High	50%	65%	125
		Med	100% ²	100% ²	80
		Low	100% ²	100% ²	80