Option D: 110-foot fixed buffer with Council consideration of an alternate buffer width derived from a scientific site-specific study.

This option has a fixed 110-foot buffer for the UMU IV area at the Edmonds Marsh unless amended by the Council. This option clarifies that the buffer starts at the outer edge of the Marsh wetland (i.e., the buffer starts at the Marsh edge of the berm at Harbor Square). This option allows the Council to consider an alternate buffer (consistent with Ecology's recommendation) at a later date if the alternate buffer is derived from a rigorous site-specific scientific study and the applicable legal standards stipulated in the Shoreline Management Act and State Guidelines. To ensure an unbiased and comprehensive study, the details for the conduct of the scientific site-specific study are specified in an Appendix C to the SMP. The scientific site-specific study would occur when a master planned development is approved by the Council and the proponent agrees to pay for the scientific study as stipulated in Appendix C with Council oversight. The science-based 110-foot buffer width or an alternate buffer width (if approved by Council) would not be reduced or exempted by any SMP or CAO provisions (e.g., Appendix B or 24.40.020). This option also clarifies that the buffer is separate from the setback for structures, and that the 15-foot setback starts at the outer edge of the buffer.

Option D is implemented by the following changes to the SMP.

1. Modify the 24.40.090 Shoreline Bulk and Dimensional Standards table and footnote 18 as shown below.

Shoreline Development	Shoreline Area Designation
	Urban Mixed Use IV
All Other Commercial and Light Industrial Development	
Shore Setback	15
Buffer	110[18]
Recreation	
Shore Setback	15
Buffer	110[18]
Residential Development	
Shore Setback	NA
Buffer	NA
Transportation and Parking	
Shore Setback	15
Buffer	110[18]
All Other Development	
Shore Setback	15
Buffer	110[18]

Footnote 18: The Urban Mixed-Use IV environment has a 110-foot buffer that starts at the outer edge of the Edmonds Marsh where the presence and action of waters are common and usual or at the wetland/upland edge. A 110-foot vegetated buffer is required to be established when an approved master planned development is implemented on the north or south side of the Edmonds Marsh. On the west side of the Marsh, a vegetated buffer will be required between the railway right-of-way and the west edge of the Marsh if railroad tracks are added or modified in the railway area. The Council may establish an alternate buffer width at the time of an approved masterplan for development if the alternate buffer width is derived from a rigorous site-specific scientific study to determine the buffer necessary to protect properly functioning wetland/tideland habitat and its associated ecological functions. When determining an alternate buffer derived from the site-specific study, the Council will adhere to the legal standards of the Shoreline Management Act and State guidelines. The conduct of the scientific site-specific study will be in conformance with Appendix C to the SMP. No buffer reductions or exemptions will apply to the 110-foot buffer or alternate buffer for this UMU IV area.

2. Modify the definition of setback in 24.90.050 (A) to be:

> 24.90.050 A. "Shore setback" or "setback" means the minimum distance between a structure or use from the outer edge of a buffer, or from the edge of the shoreline if no buffer is required.

3. Delete all CAO provisions that may reduce or exempt the SMP buffer for the Edmonds Marsh in Appendix B and/or in Section 24.40.020 of the SMP.

> This would include deleting in Appendix B sections 23.50.040 (G)(1) to (4) [Wetland Buffer Modifications], 23.50.040 (I) [Additions to structures], and 23.40.220 (C)(4) [Interrupted wetland buffer]; and 24.40.020 (F)(2)(e) [Additions to structures].

4. Add the following Appendix C to the SMP.

Appendix C. Scope of Work for Site-Specific Scientific Study at the Edmonds Marsh

The site-specific study, by professionals with field experience in wetland and wildlife science, is to provide comprehensive, site-specific scientific information that the Council will need to consider in approving an alternate buffer width for the Edmonds Marsh. A report on the study results will be peer reviewed by at least three independent scientists having wetland/wildlife expertise before the report is presented to the Council and the public.

Wetlands and marshes provide three broad ecological functions that will each need to be evaluated by the site-specific study: 1) Biogeochemical functions, which are related to trapping and transforming chemicals and include functions that improve water quality in the watershed; 2) Hydrologic functions, which are related to maintaining the water regime in a watershed including functions as reducing flooding; and 3) Food web and habitat functions.

The site-specific study should evaluate past, current and projected future ecological functions of the Edmonds Marsh with and without development occurring in adjacent areas, with planned restoration efforts at the Marsh such as the Willow Creek Daylighting project or volunteer revegetation efforts, and in the context of an approved master planned development or redevelopment on one or more edges of the Marsh.

Buffers provide for the protection and maintenance of wetland functions; thus the site-specific study will need to evaluate buffer widths adjacent to the Edmonds Marsh that will ensure effective buffer functions including 1) removing sediment, 2) removing excess nutrients, 3) removing toxics, 4) influencing the microclimate, 5) screening adjacent disturbances (including noise and light), 6) maintaining habitat connectivity, and 7) maintaining adjacent habitat critical for the life needs of wildlife that use wetlands. Each of these buffer functions should be evaluated against past, present and projected future ecological functions of the Marsh as affected by proximity of development and/or other human activities.

Because of the uniqueness of the Edmonds Marsh and the diversity of wildlife species that it supports (i.e., 191 different species of birds have been identified at the Marsh), the site-specific study should include special focus on the life needs of the wildlife that use the Edmonds Marsh (i.e., the wetland ecological function for providing habitat for wildlife). Edmonds Marsh wildlife consists of birds, mammals, reptiles, amphibians, fish and insects. Because of all these variables, the need for buffer zones are complex among and between each of the species and include: 1) Refuge/shelter; 2) Food; 3) Breeding habitat; 4) Nesting materials; and 5) Screening/distancing wildlife from human activities. It is known that the Marsh's ecological functions in providing habitat and food web for wildlife is the most critical component of this study in order to evaluate site-specific buffer widths necessary to preserve/protect those ecological functions.

Diversity and abundance of Marsh wildlife depends not only on the width and extent of vegetated buffers, but also on plant species composition and other characteristics (density, quality, vertical structure, etc.) of the plant communities involved. Many studies have found correlations between buffer width and wildlife diversity and function. The referenced as follows list scientific papers are examples of salt marsh and wetland buffer literature that the site-specific study will need to reference and utilize in the methodology and analysis for evaluating buffer widths on each edge of the Edmonds Marsh.

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