

**WETLAND REVIEW AND EVALUATION REPORT FOR THE
2015 SEATTLE ENVIRONMENTALLY CRITICAL AREAS UPDATE**

This report summarizes findings and recommendations for future code updates.

DOCUMENTS REVIEWED

The City provided Shannon & Wilson, Inc. with a list of Environmentally Critical Areas (ECA) questions to be addressed during our document review and evaluation (see enclosed Wetland ECA Questions). Our initial task included reviewing the following documents to address these questions:

- SMC, Chapter 25.09
- Washington State Wetland Rating System for Western Washington: 2014 Update (Washington Department of Ecology [Ecology] Publication #14-06-029, dated October 2014) – referred to herein as Wetland Rating System.
- Update on Wetland Buffers: The State of the Science Final Report (Ecology Publication #13-06-11, dated October 2013) – referred to herein as State of the Science.

Based on our review of the above documents, we also reviewed the following documents to better address the City’s ECA questions:

- Wetland Mitigation in Washington State, Part 1: Agency Policies and Guidance (Ecology Publication #06-06-011a, dated March 2006)
- Wetlands in Washington State, Volume 1: A Synthesis of the Science (Ecology Publication #05-06-006, dated March 2005)
- Wetlands in Washington State, Volume 2: Guidance for Protecting and Managing Wetlands (Ecology Publication #05-06-008, dated April 2005) – referred to herein as Wetlands in Washington State, Volume 2
- Appendix 8-C of Wetlands in Washington State, Volume 2: Guidance for Protecting and Managing Wetlands (part of Ecology Publication #05-06-008 but updated in October 2014) – referred to herein as Appendix 8-C.
- Wetlands & Critical Areas Ordinance (CAO) Updates: Guidance for Small Cities, Western Washington Version (Ecology Publication #10-06-002, Second Revision, updated October 2012) – referred to herein as Wetlands & CAO Updates.

INTERVIEW

On December 17, 2014, Shannon & Wilson, Inc. interviewed Ms. Donna Bunten, Ecology CAO coordinator, regarding recent ECA code revisions of other Western Washington cities and counties, and to understand Ecology's priorities in future ECA code revisions. Shannon & Wilson, Inc. also corresponded with Ms. Bunten and Mr. Patrick McGraner, Ecology Wetlands Specialist, via e-mail on December 17 and 18, 2014.

RESULTS

Wetland Definition

The SMC wetland definition is essentially the same as the Washington Administrative Code wetland definition. The SMC definition is: *Wetlands are those areas that are inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from nonwetland sites, including, but not limited to, irrigation and stormwater ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands include those artificial wetlands intentionally created from nonwetland areas to mitigate conversion of wetlands.*

Under this definition, roadside ditches, ornamental ponds, and other wet areas that were artificially created in upland areas are exempt from being regulated as wetlands. However, these areas may be regulated as streams or other wildlife habitat under the development standards for fish and wildlife habitat conservation areas (SMC 25.09.200).

In instances where wetlands were legally filled and mitigated for in the past but wetland conditions have unintentionally been created in the same location, we recommend that the City not regulate these new wet areas. In areas that were formerly wetlands where the wetland impacts were not mitigated, wet areas that meet the wetlands definition above should be regulated as wetlands. A good example of this would be roadside ditches, where a larger wetland system was filled in the past to construct a road and/or adjacent development, and the current roadside ditches meet the wetlands definition above. If the wetland fill was not mitigated, these ditches should be regulated as wetlands. Whether wetlands were unintentionally created in uplands or wetlands should be determined during the evaluation of an application (prior to allowing wetland fill).

Wetland Delineation Methodology

SMC 25.09.020 currently requires the use of the Washington State Wetlands Identification and Delineation Manual (Ecology Publication #96-94) for wetland delineations. In 2011, Ecology repealed use of #96-94 and now requires use of the U.S. Army Corps of Engineers' (the Corps') Wetland Identification and Delineation manual (1987) and associated regional supplements for wetland delineations. The applicable supplement for the Seattle area is Western Washington: Western Mountains, Valleys, and Coast Regional Supplement, dated May 2010. We recommend revising the code to require the 1987 manual and 2010 supplement, and include "or as revised" to allow for future document revisions.

Wetland Rating

SMC 25.09.160 requires Washington State Wetland Rating System for Western Washington (Publication #04-06-25) for rating/classifying wetlands within the City. In addition, SMC 25.09.160(C)(1) uses habitat function values based on this document. In 2014, Ecology revised their wetland rating system, which is referenced as Publication #14-06-029. We recommend revising the code to require the 2014 revised document, and include "or as revised" to allow for future document revisions.

Regulation of Small (Less than 1,000 Square Feet) Wetlands

Seattle Municipal Code (SMC)

Under SMC 25.09.160(C)(1)(b), Category IV wetlands that are under 1,000 square feet (sf) in size, and are not associated with other larger wetland systems or water bodies, are not required to have a buffer. Under SMC 25.09.160(C)(3), these small, Category IV wetlands can also be filled as long as one of the following mitigation strategies is used: (1) construct a similar wetland, (2) plant the same size area on site with native vegetation, (3) construct a stormwater facility to offset the wetland's water quality functions, or (4) construct a green roof or roof garden that offsets the wetland's hydrologic and/or water quality functions.

Washington Department of Ecology (Ecology) Guidance For Small Cities

Ecology technically regulates all waters of the state, including small wetlands, under the state Clean Water Act (90.48 Revised Code of Washington). However, in Wetlands & CAO Updates, Ecology indicates that cities and counties may elect to not require buffers around Category III and IV wetlands that are under 1,000 sf in size. Based on discussions with Patrick McGraner, Wetlands Specialist at Ecology, the buffer limitation was included because in many instances the buffer would be significantly larger than the wetland itself.

The Wetlands & CAO Updates document also recommends that city and county codes can exempt a project from the need to avoid and minimize impacts to these wetlands, but not from the requirement to mitigate impacts to these smaller wetlands. However, based on discussions with Donna Bunten, CAO Coordinator, Ecology acknowledges that the loss of small wetlands results in increased fragmentation of habitat and greater distances between wetland patches, which can have a significant effect on the ability of a landscape to support viable populations of wetland-dependent wildlife, including amphibians. The limitation on regulating these smaller wetlands was not based on best available science but was allowed because Ecology recognized that many jurisdictions desired to place size thresholds on regulated wetlands to focus limited staff time and attention on larger/more valued natural resources.

Best Available Science and Recommendations

Best available science indicates these smaller wetlands still provide water quality, floodwater storage/attenuation, and wildlife habitat. In the revised Wetland Rating System, Ecology indicates that although very small wetlands may not provide adequate habitat for some of the larger wildlife species, they are known to provide critical habitat for many smaller species, including amphibians. In addition, the author notes that scoring of water quality and hydrologic functions is not dependent on the size or the habitat niches in the wetland. Appendix 8-C, released in October 2014, does not include size limits on wetlands for buffer widths or mitigation requirements.

To be more consistent with best available science, we recommend that the City regulate wetlands based on their wetland category and wildlife, hydrologic, and water quality functions, regardless of size. At a minimum, SMC 25.09.160(C)(3) should be revised to state that one or more of the four options can be used to mitigate the fill of Category IV wetlands under 1,000 sf as long as the applicant can demonstrate that all of the wetland functions are being replaced.

Wetland Buffer size

In Appendix 8-C, Ecology recently proposed three alternatives for buffer widths. Alternative 1 has the most conservative (largest) buffer widths and is only based on the wetland category using the revised Wetland Rating System. Alternative 2 provides buffer widths based on the wetland category and the adjacent land use intensity. Alternative 3 provides buffer widths based on the wetland category, adjacent land use intensity, and whether the wetland provides a low, moderate, or high habitat function. Alternative 3 also differentiates certain types of Category I and II wetlands that are considered rare or unique (e.g., estuarine, interdunal).

Ecology also provides an Alternative 3A, which provides buffers based on a graduated scale, where the width increases for every one point increase in the habitat score (rather than lumping habitat scores into low, moderate, or high). Although this alternative may be more “fair,” it seems relatively complicated and may result in more disagreement over individual habitat function points.

We recommend that the City adopt the Alternative 3 buffer requirements because it provides easily understood buffer width requirements that are flexible depending on the wetland category, its functions, and the proposed land use. A comparison of the existing SMC buffers with the Alternative 3 buffers is included in the enclosed Table 1, Wetland Buffer Width Comparison.

Wetland Buffer Averaging

Appendix 8-C allows for buffer averaging if it will improve the protection of wetland functions, or if it is the only way to allow for reasonable use of a parcel; however, there is no scientific information available to determine if averaging the widths of buffers actually protects functions of wetlands.

The SMC and Ecology’s wetland buffer averaging requirements are similar. Both require that the total buffer area is not reduced, include similar minimum buffer widths, and require that the buffer averaging not reduce wetland functions or values. For buffer averaging to improve wetland protection, Ecology also requires that the wetland have significant differences in characteristics that affect its habitat functions (such as a wetland with a forested component adjacent to a degraded emergent component), and that the buffer is only decreased next to the more degraded wetland area and increased adjacent to the higher-functioning area of habitat. For buffer averaging to allow reasonable use of a parcel, Ecology also requires that there are no feasible alternatives to the site design that could be accomplished without buffer averaging.

Meeting Ecology's additional criteria for improving wetland protection (the wetland has to have significant differences in characteristics that affect its habitat functions) frequently may not be possible in Seattle due to small lot sizes and/or the homogeneous nature of some wetlands. In addition, requiring less buffers around degraded portions of a wetland would likely result in further degradation of these areas.

SMC 25.09.160(D)(1)(c) provides a table, based on wetland category and habitat function, for minimum buffer widths during buffer averaging. Ecology simplifies minimum buffer widths as: “The buffer at its narrowest point is never less than $\frac{3}{4}$ of the required width.” The differences between the SMC and Ecology minimum buffer widths are on the order of 2.5 to 23.8 feet (see enclosed Table 2). It is our opinion that the $\frac{3}{4}$ minimum buffer width requirement is more

uniform in nature and more easily understood. Therefore, we recommend that the wording and table in SMC 25.09.160(D)(1)(c) be replaced, “The buffer at its narrowest point is never less than $\frac{3}{4}$ of the standard buffer width required in SMC 25.09.160(C)(1)(b).”

We also recommend that a provision be added to allow for reducing the buffer more than $\frac{3}{4}$ of the standard buffer if this buffer averaging would create an undeveloped, vegetated corridor between the site wetland and another wetland or other protected natural area.

Wetland Buffer Reduction

Seattle Municipal Code (SMC)

SMC 25.09.160(D)(2) allows for buffer reductions on Category IV wetlands when buffer averaging or reducing the yard/setback does not mitigate the hardship of maintaining the full buffer. The lot where the buffer is located must have been in existence before October 31, 1992, and the Director is authorized to reduce the buffer to a minimum width of 35 feet. Restoration of the site wetland would likely be required as part of the buffer reduction. SMC requires restoration to comply with Ecology’s Guidelines for Developing Freshwater Wetlands Mitigation Plans and Proposals (Ecology Publication #94-29).

Wetland buffer reductions for all wetland categories are also allowed as an exception in SMC 25.09.300 if the applicant demonstrates that strict application of the development standards, including buffer averaging and reduced yard/setbacks, would not permit any reasonable use of the property.

Washington Department of Ecology (Ecology) Guidance

Appendix 8-C allows for high land use intensity buffer widths to be reduced to moderate land use intensity buffer widths when development impacts can be reduced. For wetlands that score low for habitat function, the buffer width can be reduced by applying measures to minimize the impacts of the proposed land uses. Examples of these measures are summarized in Appendix 8-C, Table 8C-8 and include ways to reduce lighting, noise, toxic runoff, stormwater runoff, change in water regime, pet/human disturbance, and dust impacts. For wetlands that score moderate to high for habitat functions, these impact minimization measure must be implemented, plus a relatively undisturbed, vegetated corridor at least 100 feet wide must be protected between the wetland and any other priority habitat (as defined by the Washington State Department of Fish and Wildlife). The corridor must be protected for the entire distance between the wetland and the priority habitat by some type of legal protection such as a conservation easement.

Ecology also allows for a reduction in buffer widths where existing roads or structures lie within the wetland: “Where a legally established, non-conforming use of the buffer exists (e.g., a road or structure that lies within the width of buffer recommended for that wetland), proposed actions in the buffer may be permitted as long as they do not increase the degree of nonconformity. This means no increase in the impacts to the wetland from activities in the buffer.”

Shannon & Wilson, Inc. Recommendations

Ecology’s guidance allows for reducing buffers to allow expansion of non-conforming uses in the buffer (second paragraph in the Ecology section above). However, we believe that the buffer on the upland side of the road may still provide upland habitat for those species that can cross the road. Expanding roadways or other structures would potentially make it so that some wildlife species could no longer access the buffer on the other side of the road/structure. The buffer may also reduce stormwater velocities and stormwater pollutants that would otherwise flow to the nearest wetland or other water body. We recommend that standard wetland buffer widths be required regardless of whether the buffer is bisected by a road or other structure, and that mitigation still be required for any new non-conforming land uses. Mitigation could include stormwater treatment for the entire impervious surface, constructing a wildlife passage culvert beneath the road, and/or improving the buffer closest to the wetland by planting woody vegetation between the wetland and the non-conforming land use.

We recommend removing the buffer reductions for Category IV wetlands from SMC 25.09.160(D)(2). Buffer reductions are already allowed under the City’s exception regulations. In addition, wetlands that rate as Category IV wetlands typically already have degraded buffers (i.e., are surrounded by high-intensity land uses); therefore, it does not make sense to further reduce the buffer functions around these wetlands. Lastly, the SMC references Ecology Publication #94-29. This document has been replaced by Ecology’s Wetland Mitigation in Washington State, Volume 2.

SMC 25.09.160(B)(3)(b) discusses minimizing lighting impacts on a parcel containing a wetland. We recommend that Ecology’s Table 8C-8 be inserted into this section of the SMC. Although the table is associated with buffer reduction in Appendix 8-C, these measures are applicable to any development adjacent to a wetland. Table 8C-8 is more inclusive than SMC 25.09.160(B)(3)(b) and includes measures to reduce not just lighting impacts but also noise, toxic runoff, stormwater runoff, change in water regime, pet/human disturbance, and dust impacts.

Far and Away Exemption

SMC 25.09.045(D) currently has a “far and away exemption” where development that does not temporarily or permanently encroach within, alter, or increase the impact to the environmentally critical area or buffer on the parcel where the development occurs is exempt from the wetland development standards. This means that the City does not review the development for potential impacts to wetlands or other critical areas if development does not occur in a critical area or its buffer.

In Appendix 8-C, Ecology notes that the review of the scientific literature has shown that buffers alone cannot adequately protect all functions that a wetland performs. Although Ecology’s recommend maximum buffer width for wetlands is 300 feet, best available science in State of the Science indicates that minimum buffer requirements for amphibians range from 394 to 571 feet. Similarly, plant species richness has been shown to be impacted from development within 200 feet of the wetland, and water-dependent birds can need 100 feet to over ½ mile of upland “core habitat” depending on species. With this best available science in mind, we do not recommend a “far and away” exemption be included in the 2015-revised SMC code.

Wetland Mitigation Ratios

SMC 25.09.160(E)(5)(a) allows for wetland restoration, creation, and enhancement for wetland mitigation and summarizes wetland mitigation ratios based on wetland categories.

Ecology provides recommended mitigation ratios in Appendix 8-C. These are similar to the SMC ratios, but also include a rehabilitation option and options for a combination of wetland mitigation types. Ecology uses wetland categories similar to SMC but also separates out specific types of Category I and II wetlands that are rare or unique (e.g., bogs and estuaries).

We recommend using Ecology's mitigation ratios. These provide more flexibility in creating a successful mitigation plan. In Appendix 8-C, Ecology also notes that the ratios may be adjusted either up or down if the category or HGM class or subclass of the wetland proposed for compensation is different (for example, ratios may be lower if impacts to a Category IV wetland are to be mitigated by creating a Category II wetland. However, we do not recommend including this language in the SMC because there would be no precedent for applicants to follow (e.g., how much can the ratios be lowered? Which HGM classes are considered more important than others?). Instead, we recommend including language that allows for use of Ecology's wetland mitigation debit/credit method as an alternative means of establishing mitigation needs.

It is our understanding that wetland mitigation banking is the Corps' preferred means of mitigating wetland impacts. Although there are currently not any City-approved in-lieu fee programs or wetland mitigation banks within the City's jurisdiction, we recommend that the SMC also include a provision that these types of wetland mitigation be allowed if one of these programs becomes available and is approved by the City.

Mitigation Monitoring Duration

SMC 25.09.160(G) requires five years of twice-annual wetland mitigation monitoring.

Ecology's sample wetlands chapter in their Wetlands & CAO guidance recommends that mitigation monitoring should be for a period of at least five years. Ecology recommends a ten-year monitoring schedule if a scrub-shrub or forested vegetation community is proposed (Donna Bunten, personal communication). The Corps has also been requiring ten years of monitoring for all wetland mitigation.

We recommend revising the SMC to require ten years of monitoring for mitigation with woody vegetation. However, we also recommend reducing requirements to one mitigation monitoring report per year. This is due to the cost of such monitoring, limited City staff time to review documents, and to be consistent with Ecology's wetland mitigation requirements. If the City approves a wetland mitigation plan that only includes emergent non-woody vegetation, we recommend the City require five years of monitoring, with one mitigation monitoring report per year.

CLOSURE

The findings and conclusions documented in this report have been prepared for specific application to this project and have been developed in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area, and in accordance with the terms and conditions set forth in our agreement. The conclusions and recommendations presented in this report are professional opinions based on interpretation of information currently available to us and are made within the operational scope, budget, and schedule constraints of this project. No warranty, express or implied, is made.

TABLE 1
WETLAND BUFFER WIDTH COMPARISONS

Wetland Category	Existing City of Seattle Buffer Width	Ecology Alternative 3 Recommended Buffer Width (based on land use intensity)		
		Low	Moderate	High
Category I Wetlands				
Low Habitat Function	100	50	75	100
Moderate Habitat Function	110	75	110	150
Wetlands of High Conservation Value*	based on habitat function**	125	190	250
Bogs*	based on habitat function**	125	190	250
Estuarine*	based on habitat function**	100	150	200
Wetlands in Coastal Lagoons*	based on habitat function**	100	150	200
High Habitat Function	200	150	225	300
Category II Wetlands				
Low Habitat Function	100	50	75	100
Moderate Habitat Function	110	75	110	150
Estuarine*	based on habitat function**	75	110	150
Interdunal*	based on habitat function**	75	110	150
High Habitat Function	200	150	225	300
Category III Wetlands				
Low Habitat Function	60	40	60	80
Moderate Habitat Function	85	75	110	150
High Habitat Function	85	150	225	300
Category IV Wetlands				
	50	25	40	50

Notes:

*With low or moderate habitat function. If these wetland types have high habitat values, the high habitat buffers should be used (Ecology guidance states that if the wetland meets more than one characteristic, the buffer recommended to protect the wetland is the widest one).

**The SMC does not currently differentiate specific wetland types within any of the wetland categories. Therefore, these wetland types would have a buffer based on their low, moderate, or high habitat functional value.

Ecology = Washington Department of Ecology

TABLE 2
WETLAND BUFFER AVERAGING - MINIMUM BUFFER WIDTH COMPARISONS

Wetland Category	Existing SMC Standard Buffer Width	Existing SMC Minimum Buffer Widths for Buffer Averaging	Proposed 3/4 Minimum Buffer Width for Buffer Averaging*
Category IV Wetlands	50 feet	35 feet	37.5 feet
Category III Wetlands with High Habitat Function	85 feet	60 feet	63.5 feet
All Other Category III Wetlands	60 feet (low habitat function) 85 feet (moderate habitat function)	40 feet	45 feet (low habitat function) 63.75 feet (moderate habitat function)
Category I and II Wetlands with High Habitat Function	200 feet	140 feet	150 feet
All Other Category I and II Wetlands	100 feet (low habitat function) 110 feet (moderate habitat function)	75 feet	75 feet (low habitat function) 82.5 feet (moderate habitat function)

Notes:

* Ecology recommends allowing buffer averaging with a maximum buffer reduction of 3/4 of the standard buffer width. For purposes of comparison, the 3/4 minimum buffers were calculated using existing SMC standard buffer widths.

SMC = Seattle Municipal Code