

City of Tacoma, Washington

# ONE TACOMA

A Comprehensive Plan  
for a Vibrant, Connected,  
and Sustainable City

Critical Areas Ordinance Gap Analysis| MAY 2025

Prepared by Facet

# CONTENTS

1	Introduction	1
1.1	Document Organization	1
2	General Provisions and Administration (TMC 13.11.100–290)	3
2.1	Intent (13.11.120)	4
2.2	Regulated Uses/Activities (13.11.140)	4
2.3	Pre-existing Uses/Structures (13.11.145)	4
2.4	Review Process (13.11.190)	5
2.5	Activities Allowed with Staff Review (13.11.210)	5
2.6	Application Types (13.11.220)	6
2.7	Application Submittal Requirements (13.11.230)	6
2.8	Legal Test (13.11.240)	6
2.9	General Mitigation Requirements (13.11.270)	7
3	Wetlands (TMC 13.11.300–340)	8
3.1	Wetland Classification (13.11.310)	8
3.2	Wetland Buffers (13.11.320)	9
3.3	Wetland Buffer Modifications (13.11.330)	10
3.4	Wetland Mitigation Requirements (13.11.340)	10
4	Streams and Riparian Habitats (TMC 13.11.400–450)	12
4.1	Streams and Riparian Habitats (13.11.400)	13
4.2	Stream Classification (13.11.410)	13
4.3	Stream Buffers (13.11.420)	13
4.4	Stream Buffer Modification (13.11.430)	14
	Stream Buffer Increases	14
4.5	Stream Standards (13.11.440)	15
4.6	Stream Mitigation Requirements (13.11.450)	15
5	Fish and Wildlife Habitat Conservation Areas (TMC 13.11.500–560)	16
5.1	Classification (13.11.510)	17
5.2	Standards (13.11.520)	17
6	Flood Hazard Areas (TMC 13.11.600–640)	18
6.1	Standards (13.11.620)	18

7	Geologically Hazardous Areas (TMC 13.11.700–730)	20
7.1	Designation (13.11.710)	20
	Seismic hazard and Tsunami hazard	20
7.2	Applicability (13.11.715)	21
7.3	Classification (13.11.720)	21
7.4	General Standards (13.11.730)	21
8	Critical Aquifer Recharge Areas (TMC 13.11.800–820)	22
8.1	Aquifer Recharge Areas (13.11.800)	22
8.2	Classification (13.11.810)	22
8.3	Standards (13.11.820)	22
9	Technical Terms and Land Use Definitions	23
	References	24
	Appendix A	25
	Appendix B	26
	Appendix C	27

*Disclaimer: The information contained in this report is based on the application of technical guidelines currently accepted as the best available science. All discussions, conclusion and recommendations reflect the best professional judgement of the author(s) and are based upon information available at the time the study was conducted.*

## Acronyms and Abbreviations

BAS	Best Available Science
BMP	Best Management Practices
CAO	Critical Areas Ordinance
CARA	Critical Aquifer Recharge Area
Commerce	Washington State Department of Commerce
the Corps	U.S. Army Corps of Engineers
CMZ	Channel Migration Zone
DNR	Washington State Department of Natural Resources
DOH	Washington State Department of Health
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
ESA	Environmental Science Associates
FEMA	Federal Emergency Management Agency
FFA	Frequently Flooded Area
FIRM	Flood Insurance Rate Map
FWHCA	Fish and Wildlife Habitat Conservation Area
GIS	Geographic Information System
GMA	Growth Management Act
LID	Low Impact Development
OHWM	Ordinary High Water Mark
NOAA	National Oceanic and Atmospheric Administration
NFIP	National Flood Insurance Program
NMFS	National Marine Fisheries Service
RMZ	Riparian Management Zone
RCW	Revised Code of Washington
TMC	Tacoma Municipal Code
USFWS	U.S. Fish and Wildlife Service
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife

# 1 INTRODUCTION

The Washington State Growth Management Act (GMA) requires local jurisdictions throughout Washington State, including the City of Tacoma (City), to develop and periodically update policies and regulations to designate and protect critical areas. The five critical areas, as defined by the GMA [Revised Code of Washington (RCW) 36.70A.030(5)] are listed below.

- Wetlands
- Areas with a critical recharging effect on aquifers used for potable water (i.e., critical aquifer recharge areas)
- Fish and wildlife habitat conservation areas
- Frequently flooded areas
- Geologically hazardous areas

The current periodic review cycle will be completed by December 2025 in accordance with GMA mandates. The City last completed a comprehensive update of its critical areas policies and regulations in 2015 and made partial updates to Chapter 13.11 in 2018 and 2023. Periodic updates must be based on the best available science (BAS), and any deviations from science-based recommendations should be identified, assessed and explained [Washington Administrative Code (WAC) 365-195-915]. Additionally, jurisdictions must give special consideration to conservation or protection measures necessary to preserve or enhance anadromous fisheries; jurisdictions are encouraged to also protect both surface and groundwater resources, because these waters often recharge wetlands, streams and lakes (WAC 365-190-080). Anticipated effects of climate change must also be considered per HB 1181. A BAS document for this code update was prepared separately (Facet 2025). The City's critical areas policies are currently contained in the Environment and Watershed Health element of the Tacoma Comprehensive Plan (Comprehensive Plan). The City's critical areas regulations are currently codified in the Tacoma Municipal Code (TMC), Chapter 13.11 – Critical Areas Preservation. Critical areas in shoreline jurisdiction are regulated under TMC Title 19 – Shoreline Master Program.

This gap analysis provides a review of the current critical areas regulations under TMC Chapter 13.11, noting gaps where existing regulations may not be consistent with BAS or the GMA. It also makes recommendations for improvements to general aspects of the City's Critical Areas Preservation Ordinance (CAPO) such as clarity, consistency, and ease of use. The primary intention of this gap analysis is to help guide the update of the City's critical areas regulations.

## 1.1 Document Organization

Recommendations for updating the City's existing critical area regulations under TMC Chapter 13.11 – Critical Areas Preservation are provided in Sections 2 through 8. Section 2 addresses the general provisions that are applicable to all critical areas; Sections 3 through 8 address the

different types of critical areas covered by the GMA, according to how they are organized in the current code. To highlight findings of the gap analysis, a code review summary table is provided at the beginning of each section. Where a potential gap is identified, subsections following each table provide further discussion and recommendations.

## 2 GENERAL PROVISIONS AND ADMINISTRATION (TMC 13.11.100–290)

This section addresses code sections that are applicable to all types of critical areas. Table 1 provides a synopsis of recommended changes. See discussion of comments/recommendations in the subparts below this table.

**Table 1. Purpose and general provisions review summary.**

Code Section	Title	Review Comment / Recommendations*	Reason for Recommendation
13.11.100	General Provisions		
13.11.110	Purpose		
13.11.120	Intent	Recommend matching the RCW list of critical areas	Consistency
13.11.130	Scope and Applicability		
13.11.140	Regulated Uses/Activities	Add reference to other permitting agencies	BAS / clarity
13.11.145	Pre-existing Uses/Structures	Consider expanding this section for greater clarity	Clarity
13.11.150	Repealed		
13.11.160	Abrogation and Greater Restrictions		
13.11.170	Severability		
13.11.180	Critical Area Designation and SEPA		
13.11.190	Review Process	Recommend cross-referencing 'qualified professional' definition and updating. Include peer-review process	BAS / clarity BAS
13.11.200	Allowed activities		
13.11.210	Activities Allowed with Staff Review	Update isolated wetland allowance	BAS
13.11.220	Application Types	Include duration of study acceptance	BAS / clarity
13.11.230	Application Submittal Requirements	Consider removing limitation on peer review.	BAS
13.11.240	Legal Test(s)	Review and update as needed for administration	BAS / clarity
13.11.250	General Standards		
13.11.260	Residential Density Credits		

Code Section	Title	Review Comment / Recommendations*	Reason for Recommendation
13.11.270	General Mitigation Requirements	Consider updating provisions under off-site mitigation options	Clarity
13.11.280	Conditions, Notice on Title, and Appeals		
13.11.290	Sureties		

\* See discussion of comments/recommendations in the subsections below this table.

## 2.1 Intent (13.11.120)

**RECOMMENDATION:** Update the critical areas list to match RCW 36.70A.030(5). Stream corridors are a type of fish and wildlife habitat conservation area (FWHCA) and do not need to be listed separately.

## 2.2 Regulated Uses/Activities (13.11.140)

**RECOMMENDATION:** Strengthen section by adding the following provision. This language was provided by the Washington State Department of Ecology during a recent review of a draft Critical Areas Ordinance (CAO) update in the region.

*“Compliance with the provisions of the Title does not constitute compliance with other federal, state, and local regulations and permit requirements that may be required (for example, Shoreline Permits, HPA permits, Army Corps of Engineers Section 404 permits, Ecology Section 401 permits, NPDES permits). The applicant is responsible for complying with these requirements, apart from the process established in this Title. Where applicable, the Designated official will encourage use of information such as permit applications to other agencies or special studies prepared in response to other regulatory requirements to support required documentation submitted for critical areas review.”*

Critical area protections are implemented through local, state and federal guidance and permit requirements.

## 2.3 Pre-existing Uses/Structures (13.11.145)

**RECOMMENDATION:** The City may want to cross-reference the invasive plant and hazard tree sections noted below in this section to cover common issues and questions on developed sites with critical areas, such as select vegetation removal and hazard tree removal conditions.



Currently, some select vegetation removal, specifically invasive plants, are covered under TMC 13.11.200.B.6 and hazard trees are addressed under TMC 13.11.210.B.11. A cross-reference may be added here if that improves use and administration.

The existing cross-reference to Section 13.06.010.L – Nonconforming parcels/uses/structures should be retained. Additionally, specific criteria could be provided to compliment zoning/non-conforming use/structure code criteria in TMC 13.05 and 13.06.

## 2.4 Review Process (13.11.190)

**RECOMMENDATION:** Note in the first paragraph that all site-specific critical area assessments must be completed by a qualified professional. Further into this code section a ‘geologic expert’ is noted. All critical area types require specific expertise and some require state licensing. TMC 13.11.230.B.3 states that Critical Areas Reports must be prepared by a qualified professional. Recommend extending that requirement to all critical area assessments, including initial presence/absence screening.

Note: The definition of qualified professional under TMC 13.01.110 is broadly worded and does not mention applicable state licensing.

Additionally, critical area assessments are typically peer reviewed to ensure thorough and accurate documentation, and subsequently that critical area protections are applied. Peer review may be conducted by qualified City staff or a third-party prior to acceptance of findings. This general procedure is described in TMC 13.11.230.A. A cross-reference may be added to 13.11.190 to improve clarity.

Clarify applicant’s responsibility for fees associated with pre-application meetings, application processing, and peer review. Again, a cross-reference to TMC 13.11.230.A is recommended. The city may also choose to cross-reference TMC 13.05.010 Land Use Permits and TMC 13.05.030 Zoning and Land Use where pre-application meetings are detailed.

## 2.5 Activities Allowed with Staff Review (13.11.210)

**RECOMMENDATION:** Review and update the isolated wetland code provisions. Current BAS-based Ecology guidance limits the isolated wetland allowance to Category IV wetlands. Therefore, Category III wetlands in this code language under TMC 13.11.210.B.3 is no longer needed and should be removed for consistency with BAS. Review and update the wetland criteria for TMC 13.11.210.B.3. through d. Ecology updated wetland habitat function scores; the habitat score range is now 3-5 points for a low ranking. Also, the wetland mosaic reference should be reviewed relative to Ecology’s current definition. Ecology defines wetland mosaic as follows (Ecology 2022).

*“An area with a concentration of multiple small wetlands, in which each patch of wetland is less than one acre; patches are less than 100 feet from each other; and areas delineated as wetland are more than 50 percent of the total area of the entire mosaic, including uplands and open water.”*

## 2.6 Application Types (13.11.220)

**RECOMMENDATION:** For clarity and consistent administration, TMC 13.11.220.B.1 – Verification could be updated to include the length of time the verification is considered current and valid. For example, wetland studies are commonly accepted as current for a 5-year period. Geologic hazard assessments may change over time with surrounding development changes. This timeframe may be reduced if significant site alterations have occurred.

## 2.7 Application Submittal Requirements (13.11.230)

**RECOMMENDATION:** Remove the phrase, “In the event of conflicts regarding information submitted,” from the last sentence in TMC 13.11.230.A. Third party review of critical area report and documentation should be applied as necessary for standard peer review. As noted in Section 2.4 above, critical area assessments are typically peer reviewed to ensure thorough and accurate documentation, and subsequently that critical area protections are applied. Peer review is a standard practice in scientific disciplines.

## 2.8 Legal Test (13.11.240)

**RECOMMENDATION:** Review and update the three legal tests as needed to ensure they are being applied and administered as intended. This code spells out three legal tests for highly encumbered sites, no practicable alternative, reasonable use, and public interest.

The no practicable alternatives provision appears to be similar to a variance option. To align with BAS for wetlands, buffer reductions should not be allowed beyond the minimum recommendations.

The issues surrounding regulatory takings are complex and the agencies recognize the need for a process to address situations where strict compliance with regulations would deprive a property owner of all reasonable use of the property. That type of project would be processed through the City’s existing reasonable use code provision.

The City should consider whether there are scenarios, outside of reasonable use and public interest, that the City would want to allow riparian/stream and wetland buffer reductions beyond the minimum or if such situations could all be handled through reasonable use.

## 2.9 General Mitigation Requirements (13.11.270)

**RECOMMENDATION:** Update or consolidate the mitigation bank and fee in-lieu sections (TMC 13.11.270.I and J) under the heading ‘approved programmatic mitigation’, which includes both. Additionally, for clarity this section could clearly state that on-site mitigation must be demonstrated to be infeasible before considering off-site mitigation. Although programmatic mitigation has a higher success rate, it should not be used to increase developable land arbitrarily. Mitigation sequencing (TMC 13.11.270.F) must always be applied first. This is likely how the code is administered, but the language could be clearer.

### 3 WETLANDS (TMC 13.11.300–340)

This section addresses code sections that are applicable to wetlands. Table 2 provides a synopsis of recommended changes. See discussion of comments and recommendations in the subparts below this table.

**Table 2. Wetlands review summary.**

Code Section	Title	Review Comment / Recommendations*	Reason for Recommendation
13.11.300	Wetlands		
13.11.310	Wetland Classification	Update this section to include wetland identification Consider adding delineation map method information	BAS / clarity BAS / clarity
13.11.320	Wetland Buffers	Review vegetative buffer condition requirements Update habitat score ranges Review Ecology's current buffer recommendation	BAS BAS BAS
13.11.330	Wetland Buffer Modifications	Remove buffer reduction option Cross-reference interrupted buffers	BAS Clarity
13.11.340	Wetland Mitigation Requirements	Emphasize mitigation sequencing Review current ratios, consider adding additional options	BAS BAS

\* See discussion of comments/recommendations in the subparts below this table.

#### 3.1 Wetland Classification (13.11.310)

**RECOMMENDATION:** Add wetland identification criteria to this code section and changing the heading to “Wetland Identification and Classification.” Also recommend cross-referencing the wetland definition under TMC 13.01.110 for clarity and reviewing for consistency with RCW 36.70A.030.

Wetland delineation methodology is commonly specified in CAOs. Recommend adding to City code. Current BAS-based wetland assessment methodology follows the *Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987)* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region Version 2.0* (U.S. Army Corps of Engineers 2010) or as amended.

Wetland Classification should be updated to reference the current 2023 Ecology wetland rating system [*Washington State Wetland Rating System for Western Washington: 2014 Update*,

*Version 2.0 (Hruby and Yahnke 2023)]* or as amended. This rating update did not substantively change the 2014 model; it contains minor updates and clarifications.

**RECOMMENDATION:** Consider adding delineation mapping language from the Ecology Publication 22-06-014, Appendix A – Sample Wetland Regulations:

*“Wetland delineations will be documented on a ground-verified map using either professional surveying methods or an equivalent method using GPS with sub-meter accuracy.”*

GPS mapping is commonly used and can be a cost saving option for applicants.

## 3.2 Wetland Buffers (13.11.320)

**RECOMMENDATION:** Review and update wetland buffer widths. Effective wetland buffer widths vary depending on the targeted wetland functions, intensity of surrounding land use, and buffer characteristics. The buffer width requirements should state that standard buffer widths presume the buffer is vegetated with native plants appropriate for this ecoregion. Buffers that do not meet that criteria should be increased or enhanced to maintain the standard buffer width. TMC 13.11.330 indicates buffer increases may be applied to some degraded buffers, but vegetation condition criteria could be clarified.

Some information in the wetland buffer section is out-of-date and does not align with BAS. Specifically, the high, moderate, low habitat score ranges were adjusted by Ecology in 2018. Low is now 3-5 points, moderate is 6-7 points, and high is 8-9 points. While the code includes common minimization measures, it does not address habitat corridors, at least not to the extent currently recommended by Ecology.

The CAPO existing buffer width system prescribes a standard buffer width based on wetland category and habitat score. Ecology’s latest 2022 wetland guidance for CAO updates, Publication 22-06-014, Appendix C, provides three BAS-based options for wetland buffer tables which each have some similarities and some differences to the buffer system in the current code.

Ecology’s preferred option, Option 1, provides the most flexibility and site-specific buffers. It is similar to the code’s existing buffer system in that the buffers are based on wetland category and habitat score. Option 1 includes options to reduce the buffer through provision of a habitat corridor and implementation of minimization measures to reduce the level of impact from the adjacent land use. Use of the lowest buffer widths under this option, require the implementation of minimization measures. Minimization measures are similar to those already stated under Section (2)(a). Every effort should be made to implement as many measures that are applicable and practical, as determined by City staff. If an applicant chooses not to apply the applicable minimization measures, then an approximately 33% increase in the width of all buffers is required. Note that to use the reduced widths, the protection of a wildlife corridor is also required between higher functioning wetlands that score 6 or more habitat points and certain other protected areas, when present. If a corridor is available, but not included, then the non-reduced (33% increase) buffer would be required for those higher functioning wetlands. To recognize

urban conditions, the city may apply the narrower buffer to well vegetated sites where minimization measures are applied. In that case, a qualified professional must document the lack of potential to establish a habitat corridor.

The City needs to review the Ecology recommendations (Options 1 ,2 and 3) for wetland buffer and update their code accordingly. See Appendix B of this report for Ecology recommendations.

### 3.3 Wetland Buffer Modifications (13.11.330)

**RECOMMENDATION:** Review and update wetland buffer modification. The buffer modifications currently in the code should be reviewed in conjunction with the updates to the buffer width requirements. Depending on the buffer approach chosen, some modifications may not be applicable, may not be compliant with BAS, or may need to be re-structured to fit with the chosen buffer tables. For example, if Ecology's Buffer Option 1 is chosen, the only allowed reductions will be built into the buffer table(s). BAS does not support further reductions. As discussed in Section 2.8 Legal Test (13.11.240), BAS does not support wetland buffer reductions; only wetland buffer averaging. Exceptions are made for allowed buffer uses and exceptions, such as reasonable use and public agency or utility projects. See Sample Wetland Regulations in Appendix A.

Other jurisdictions commonly cover this information in sections for reasonable use, exemptions, allowed uses, and exceptions.

It may be helpful to cross-reference the interrupted buffer regulations under TMC 13.11.210. Ecology does recommend addressing disconnected or interrupted buffers in wetland regulations. Ecology defines functionally disconnected buffer as blocked by a road or other significant development, where that feature blocks the protective measure provided by a buffer.

### 3.4 Wetland Mitigation Requirements (13.11.340)

#### Emphasize mitigation sequencing requirements

**RECOMMENDATION:** State at the start of this section that any proposed wetland or wetland buffer modification must adhere to mitigation sequencing requirements per TMC 13.11.270.F.

#### Consider expanding on compensatory mitigation options

**RECOMMENDATION:** Mitigation ratios are intended to replace lost functions and values stemming from a proposed land use while also accounting for temporal losses. BAS wetland mitigation ratios are based on the current Ecology Rating System and type of mitigation used.

The code currently has a mitigation ratios table that aligns with current BAS. See recommend ratios in Ecology Publication 22-06-014, Appendix E (provided in Appendix C of this report). The City could add preservation to the mitigation ratio table. If preservation is added as a mitigation option, it should also be defined under TMC 13.01.

## 4 STREAMS AND RIPARIAN HABITATS (TMC 13.11.400–450)

This section addresses code sections that are applicable to streams and riparian habitats. Table 3 provides a synopsis of recommended changes. See discussion of comments and recommendations in the subsections below this table.

**Table 3. Streams and riparian habitats review summary.**

Code Section	Title	Review Comment / Recommendations*	Reason for Recommendation
13.11.400	Streams and riparian habitats	Move code into FWHCA section below	Consistency
13.11.410	Stream classification	Consider updating the stream classification system and buffers.	BAS
13.11.420	Stream buffers	Review WDFW recommendation	BAS
13.11.430	Stream buffer modifications	Review buffer modification allowances Consider relocated CMZ buffer increase to standard buffer requirements Consider providing requirements for buffer conditions	BAS Clarity BAS
13.11.440	Stream standards	Consider addressing stream daylighting and voluntary restoration.	BAS
13.11.450	Stream mitigation requirements	Recommend updating to cross-reference general mitigation requirements and sureties.	BAS / clarity
Code Section	Title	Review Comment / Recommendations*	Reason for Recommendation
13.11.400	Streams and riparian habitats	Move code into FWHCA section below	Consistency
13.11.410	Stream classification	Consider updating the stream classification system and buffers.	BAS
13.11.420	Stream buffers	Review WDFW recommendation	BAS
13.11.430	Stream buffer modifications	Review buffer modification allowances Consider relocated CMZ buffer increase to standard buffer requirements Consider providing requirements for buffer conditions	BAS Clarity BAS
13.11.440	Stream standards	Consider addressing stream daylighting and voluntary restoration.	BAS
13.11.450	Stream mitigation requirements	Recommend updating to cross-reference general mitigation requirements and sureties.	BAS / clarity



\* See discussion of comments/recommendations in the subparts below this table.

## 4.1 Streams and Riparian Habitats (13.11.400)

**RECOMMENDATION:** For consistency with state definitions, move this stream code section into the Fish and Wildlife Habitat Conservation Areas (FWHCA) section. Streams and Riparian Habitats are not listed as a separate critical area type under WAC 36.70A.030. They are a part of the FWHCA.

## 4.2 Stream Classification (13.11.410)

**RECOMMENDATION:** Currently, Tacoma uses the water typing system in WAC 222-16-030, which includes Type F, S, Np and Ns waters. Tacoma further divides stream classifications into F1 or F2 based on presence or absence of salmonid fish, and Ns1 or Ns2 based on surface water connections.

As summarized in the Tacoma BAS Review, WDFW recommends a shift away from stream typing toward a Site Potential Tree Height (SPTH) model. The City needs to consider current BAS, including WDFW's site potential tree height (SPTH) model. The SPTH model relies on soil mapping to determine the dominant tree species. It does not use the water typing system. The SPTH model is WDFW also recommends a minimum buffer width of 100 feet for all streams to protect water quality. Where data gaps in the SPTH model occur, and/or application of the tool is unclear, consultation with WDFW would be necessary. Additionally, buffer width requirements should be reviewed in relation to non-conforming use regulations.

How the City chooses to classify streams is linked to administration of buffers. Ultimately, BAS is focused on riparian areas, which consider in-stream and riparian buffer functions holistically. Jurisdictions in the region have taken the following approaches: 1) adopted the SPTH model (e.g. Skagit County); 2) retained/updated the stream typing system and increased buffer widths (Pierce County); and 3) retained stream typing and buffer widths while increasing vegetation condition standards for buffers (Sammamish).

## 4.3 Stream Buffers (13.11.420)

**RECOMMENDATION:** The SPTH model relies on soil mapping and the dominant tree species to determine the riparian management area or buffer width needed to achieve full riparian functions, including large woody debris recruitment. Riparian areas or buffers under this system do not use the water typing system. SPTHs with the City of Tacoma are generally mapped as red alder at 103-feet or Douglas-fir at 208-feet. Riparian management zones or buffers that vary

by location may present practical challenges for implementation at the parcel-scale and have considerations in equity.

WDFW also recommends a minimum buffer width of 100 feet for all streams to protect water quality. Currently, Type Ns1 and Ns2 stream buffers are below that recommendation.

In urban environments, the riparian buffer functions that BAS focuses on are shade, bank stability, large woody debris recruitment, nutrient inputs, and pollutant removal. Urban riparian areas also function as wildlife corridors. In-stream habitat and fish passage are also priorities. WDFW recommendations for urban riparian ecosystems include, restore degraded areas, maintain and improve functions through voluntary and regulatory means, identify and prioritize restoration opportunities, protect riparian vegetation, manage stormwater, and replace or remove existing infrastructure (Rentz, et al. 2020).

Consider adding vegetation condition standards to the stream buffer regulations. Apply a larger buffer if those standards are not met. Include language to incentivize or require restoration of degraded buffers on urban non-conforming sites. Using the Ecology wetland model ordinance as a guide, a 33 percent increase in buffer widths could be applied.

## 4.4 Stream Buffer Modification (13.11.430)

### Stream Buffer Increases

#### 13.11.430.A.1

**RECOMMENDATION:** The Director discretion to increase buffers to prevent habitat degradation could be revised to provide clear conditions what would potentially require a buffer increase. For example, if a buffer is not densely vegetated with native trees and shrubs, a width increase may be necessary to achieve intended buffer functions. The City may choose to tailor this language to urban environments with non-conforming uses and degraded buffers. As noted in Section 4.3 above restoration of degraded buffers benefits ecosystem functions.

#### 13.11.430.A.3

**RECOMMENDATION:** Relocate provision to the stream buffers section (TMC 13.11.430), since it is the baseline requirement and not a modification. No additional updates are needed for the provision because when a channel migration zone (CMZ) is present, the stream buffer is measured from the outer edge of the CMZ. This is consistent with BAS.

### 13.11.430.B

**RECOMMENDATION:** Review stream buffer averaging and reduction allowances for consistency with BAS. Buffer reduction with enhancement is generally not supported by the science. Recommend removing ‘and reduction’ from this section heading and removing the buffer reduction option since it does not align with BAS. Recommend removing or revising provision TMC 13.11.430.B.8 to remove buffer reduction. Buffer reductions would be considered under exemptions, exceptions, and allowances only (TMC 13.11.240).

WDFW recommendations for urban riparian ecosystems include quantifying current conditions with a goal of maintaining and improving functions through regulatory and voluntary means (Quinn, Wilhere and Krueger 2020). Riparian functions are dependent on vegetated composition and structure as documented in the 2025 BAS Review – Critical Areas, One Tacoma Comprehensive Plan Update (Facet 2025). Providing clear and robust vegetated buffer condition requirements would help achieve that goal.

## 4.5 Stream Standards (13.11.440)

**RECOMMENDATION:** This code currently addresses stream relocation or placement in culverts. Consider addressing stream daylighting and voluntary restoration to this code section. This could be added with a cross-reference to TMC 13.11.210 – Allowed Activities with Staff Review. For example, City of Kirkland Zoning Code (KZC) 90.75 Daylighting of Streams provides details on the process, plan requirements, and reporting; Kirkland also provides criteria for when the City may require an applicant to daylight a stream.

## 4.6 Stream Mitigation Requirements (13.11.450)

**RECOMMENDATION:** Consider updating to reference the General Mitigation Requirements (TMC 13.11.270) to ensure goals and performance standards are incorporated, and monitoring, maintenance and financial sureties (TMC 13.11.290) are applied to the project.

## 5 FISH AND WILDLIFE HABITAT CONSERVATION AREAS (TMC 13.11.500–560)

The City's fish and wildlife habitat conservation areas (FWHCAs) regulations should be updated to better align with current BAS. Table 4 provides a synopsis of recommended changes. See discussion of comments and recommendations in the subparts below this table.

**Table 4. Fish and wildlife habitat conservation areas review summary.**

Code Section	Title	Review Comment / Recommendations*	Reason for Recommendation
13.11.500	Fish and wildlife habitat conservation areas (FWHCAs)		
13.11.510	Classification	Review and update PHS list for Tacoma Review and update biodiversity areas/corridor size constraints	BAS BAS
13.11.520	Standards	Strengthen general standards to cover all potential FHWCA disturbances	BAS
13.11.530	<i>Repealed</i>		
13.11.540	<i>Repealed</i>		
13.11.550	FWHCA modification		
13.11.560	FWHCA biodiversity area and corridor mitigation		
Code Section	Title	Review Comment / Recommendations*	Reason for Recommendation
13.11.500	Fish and wildlife habitat conservation areas (FWHCAs)		
13.11.510	Classification	Review and update PHS list for Tacoma Review and update biodiversity areas/corridor size constraints	BAS BAS
13.11.520	Standards	Strengthen general standards to cover all	BAS

Code Section	Title	Review Comment / Recommendations*	Reason for Recommendation
		potential FWHCA disturbances	
13.11.530	<i>Repealed</i>		
13.11.540	<i>Repealed</i>		
13.11.550	FWHCA modification		
13.11.560	FWHCA biodiversity area and corridor mitigation		

\* See discussion of comments/recommendations in the subparts below this table.

## 5.1 Classification (13.11.510)

**RECOMMENDATION:** The WDFW Priority Habitats and Species (PHS) List was updated in 2023. The City may choose to adopt the current PHS List or as amended, or review it and update the current Tacoma-specific list accordingly.

The City could consider revising the way in which Biodiversity Areas and Corridors are classified. Coordination with WDFW may be beneficial if the intent is to provide criteria for designating WDFW-defined Biodiversity Areas and Corridors at the site-scale. For example, under TMC 13.11.510.B.1.b(2), specifying that multiple *tree* canopy layers are required to meet the vertical diversity criterion would improve clarity.

Similarly, review and update the 2-acre threshold for biodiversity area/corridor under TMC 13.11.510.B.1.b(3) for consistency with BAS and WDFW recommendations. Corridors typically have width requirements, but not total area requirements.

## 5.2 Standards (13.11.520)

**RECOMMENDATION:** Consider updating the general standard to make it clear that no disturbance, including temporary clearing and grading are allowed in a FWHCA without review and approval. FWHCAs must be maintained in a native vegetated condition to serve their intended functions. As summarized in the 2025 BAS Review, Critical Areas, Tacoma One Comprehensive Plan Update, FWHCA functions are dependent in part on vegetation composition and structure. TMC 13.11.520.A.2 could be updated to cross-reference TMC 13.11.550 mitigation and documentation requirements.

## 6 FLOOD HAZARD AREAS (TMC 13.11.600–640)

The goals of frequently flooded area regulations are to protect people and property from potential damage associated with flooding, and to protect floodplain habitat. Table 5, below, evaluates this code section.

**Table 5. Special flood hazard areas review summary.**

Code Section	Title	Review Comment / Recommendations*	Reason for Recommendation
13.11.600	Flood hazard areas		
13.11.610	Classification		
13.11.620	Standards	Review Title 2 usage, update if needed to increase protections Confirm continued use of FEMA BiOp option 3 Provide FEMA Habitat Assessment report content requirements Cross-reference submittal requirements	BAS, clarity Clarity Clarity Clarity
13.11.640	General development standards		

\* See discussion of comments/recommendations in the subparts below this table.

### 6.1 Standards (13.11.620)

**RECOMMENDATION:** Frequently flooded areas are regulated for compliance with Title 2 Building and Development Code; according to City staff Title 2 reviews areas with a 1% chance of flooding. The City may also consider addressing other FEMA flood map layers, such as 2% chance of flooding or 500-year flood maps, since more frequent and higher magnitude floods are predicted with climate change.

**RECOMMENDATION:** This code section could also be updated to clearly state the FEMA BiOp requirements. The City is a National Flood Insurance Program (NFIP) community that uses Option 3, which requires applicants to demonstrate compliance with the Endangered Species Act (ESA) before permitting work in a floodplain on a permit-by-permit basis. ESA compliance is typically demonstrated through a FEMA Habitat Assessment completed by a qualified professional. Reporting content standards for FEMA Habitat Assessments are not currently provided in this code section.

**RECOMMENDATION:** Add a cross-reference to application submittal requirements to make it clear to applicants and administrators that a peer review will be conducted (TMC 13.11.230).

## 7 GEOLOGICALLY HAZARDOUS AREAS (TMC 13.11.700–730)

Geologically hazardous areas addressed in the Tacoma Municipal Code include erosion, landslide, seismic, mine, volcanic, and tsunami hazard areas. The goal of geologically hazard regulations is to protect people and property from potential damage associated with these areas.

**Table 6. Geologically hazardous areas review summary.**

Code Section	Title	Review Comment / Recommendations*	Reason for Recommendation
13.11.700	Geologically hazardous areas		
13.11.710	Designation	Consider recommended updates to designation list	BAS, clarity
13.11.715	Applicability	Recommend update to address other potential impacts	BAS, clarity
13.11.720	Classification	Recommend minor reorganization	BAS, clarity
13.11.730	General development standards	Recommend considering buffer and setback terminology Review and update qualified professional definition as needed	BAS, clarity

\* See discussion of comments/recommendations in the subparts below this table.

### 7.1 Designation (13.11.710)

**RECOMMENDATION:** cross-referencing TMC 13.11.720 for further descriptions of these geologic hazard areas.

### Seismic hazard and Tsunami hazard

**RECOMMENDATION:** Tsunami hazards are triggered by seismic events and therefore, are under the umbrella of seismic hazards, along with liquefaction (i.e., lateral spreading). The City could consider updating the definition of seismic hazards to include secondary seismic hazards, such as surface rupture, seismic induced landslides, and lateral spreading.



## 7.2 Applicability (13.11.715)

**RECOMMENDATION:** Review and clarify this section to address all potential geologic hazard area, including buffer/setback impacts that may occur with a development proposal, such as temporary impacts due to clearing and grading.

## 7.3 Classification (13.11.720)

**RECOMMENDATION:** Move the tsunami hazard area details (A.6) to the seismic hazards provision (A.3) for consistency with the designations.

## 7.4 General Standards (13.11.730)

**RECOMMENDATION:** replace the terms ‘geo-setback’ and ‘geo-buffer’ with setback and buffer. These areas are managed just like other critical area buffers and setbacks. The unique name implies these areas are managed differently, but given the definitions, that doesn’t appear to be the case.

**RECOMMENDATION:** define ‘geotechnical specialist’ and/or define the qualifications for that professional to ensure rigorous and thorough review of potential hazards in the required reports.

## 8 CRITICAL AQUIFER RECHARGE AREAS (TMC 13.11.800–820)

The City's existing Critical Aquifer Recharge Areas (CARA) regulations are brief and would benefit from additional information. Recommendations from the recent South Tacoma Ground Water Protection District study by HDR and Terraphase (2025) should be reviewed and incorporated as appropriate.

**Table 7. Critical aquifer recharge areas review summary.**

Code Section	Title	Review Comment / Recommendations*	Reason for Recommendation
13.11.800	Aquifer recharge areas	Recommend map reference	BAS
13.11.810	Classification	Classify mapped CARAs	BAS
13.11.820	Standards	Fix cross-reference link	BAS

\* See discussion of comments/recommendations in the subparts below this table.

### 8.1 Aquifer Recharge Areas (13.11.800)

**RECOMMENDATION:** Cross-reference publicly available potential CARA map for the City. This reference could be updated to include other publicly available CARA maps.

### 8.2 Classification (13.11.810)

**RECOMMENDATION:** Classify mapped CARAs in the City to manage this resource. Specific hydrogeologic assessment parameters can be developed with the help of a professional hydrogeologist.

### 8.3 Standards (13.11.820)

**RECOMMENDATION:** Update information on standards for development in CARAs. The current code states that standards for development in CARAs are provided in TMC Chapter 13.09 – South Tacoma Groundwater Protection District. However, that Chapter is listed as repealed under Title 13. This broken link needs to be corrected and more detailed regulations regarding land use restrictions in CARAs need to be reviewed for consistency with BAS.

## 9 TECHNICAL TERMS AND LAND USE DEFINITIONS

Concurrent with this code update, recommend reviewing technical terms and land use definitions (TMC 13.01.110) for consistency with proposed code language and clarity. For example, if geo-setback and geo-buffer language in this chapter are replaced with buffer and setback terms, then definitions should be updated accordingly. The current content of TMC 13.01.110 is brief and lacking in content typically provided in the definitions section of a critical areas ordinance.

## REFERENCES

- Ecology. 2022. Wetland Guidance for Critical Areas Ordinance (CAO) Updates, Western and Eastern Washington. Publication #22-06-014, Washington State Department of Ecology, Shorelands and Environmental Assistance Program.
- Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station.
- Facet. 2025. "Best Available Science Review, Critical Areas: One Tacoma Comprehensive Plan Update." In-progress draft prepared concurrently with this report.
- HDR and Terraphase. 2025. South Tacoma Groundwater Protection District Review Technical Memorandum (Draft). Prepared for Tacoma Water Integrated Resource Plan Update.
- Hruby, T., and A. Yahnke. 2023. Washington State Wetland Rating System for Western Washington 2014 Update Version 2.0. Publication #23-06-009, Washington State Department of Ecology, Shorelands and Environmental Assistance Program.
- Quinn, T., G. F. Wilhere, and K. L. Krueger. 2020. Riparian Ecosystems, Volume 1: Science Synthesis and Management Implications. Habitat Program, Washington Department of Fish and Wildlife, Olympia.
- Rentz, T., A. Windrope, K. Folkerts, and J. Azerrad. 2020. Riparian Ecosystems, Volume 2: Management Recommendations. Habitat Program. Washington State Department of Fish and Wildlife, Olympia.
- U.S. Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0). ERDC/EL TR-10-3, Wetlands Regulatory Assistance Program.

# APPENDIX A

Sample Wetland Regulations, Appendix A of Ecology's Wetland Guidance for CAO Updates

**Subchapter 100**  
**(individual numbering will vary)**  
**Wetlands**

**Sections**

- 010 Purpose
- 020 Identification and Rating
- 030 Regulated Activities
- 040 Exemptions and Allowed Uses
- 050 Buffers
- 060 Critical Area Reports
- 070 Compensatory Mitigation
- 080 Unauthorized Alterations and Enforcement

**010 Purpose**

The purposes of this Chapter are to:

- 010.A. Recognize and protect the beneficial functions performed by many wetlands, which include, but are not limited to, providing food, breeding, nesting and/or rearing habitat for fish and wildlife; recharging and discharging ground water; contributing to stream flow during low flow periods; stabilizing stream banks and shorelines; storing storm and flood waters to reduce flooding and erosion; carbon sequestration; thermal refugia, and improving water quality through biofiltration, adsorption, retention, and transformation of sediments, nutrients, and toxicants.
- 010.B. Regulate land use to avoid adverse effects on wetlands and maintain the functions and values of wetlands throughout [City/County].
- 010.C. Establish review procedures for development proposals in and adjacent to wetlands.
  - 1. Compliance with the provisions of this Chapter does not necessarily constitute compliance with other federal, state, and local regulations and permit requirements that may be required (for example, Shoreline permits, Hydraulic Project Approval permits, Clean Water Act Section 404 permits and 401 certifications, Ecology Administrative Orders, or NPDES permits). The applicant

is responsible for complying with these requirements, apart from the processes established in this Chapter.

## **020 Identification, Delineation, and Rating**

020.A. Identification and Delineation. Identification of wetlands and delineation of their boundaries pursuant to this Chapter shall be done in accordance with the approved federal wetland delineation manual and applicable regional supplement. All areas within the [City/County] meeting the wetland definition and designation criteria in that procedure are hereby designated critical areas and are subject to the provisions of this Chapter. Wetland delineations are valid for five years; after such date the [City/County] shall determine whether a revision or additional assessment is necessary. Wetland delineations will be documented on a ground-verified map using either professional surveying methods or an equivalent professional method using GPS with sub-meter accuracy.

020.B. Rating. Wetlands shall be rated according to the Washington State Wetland Rating System for [Eastern or Western] Washington: 2014 Update (Ecology Publication [14-06-030 or 14-06-029] or as revised). Wetland ratings are valid for five years; after such date the [City/County] shall determine whether a revision or additional rating is necessary.

020.C. Illegal modifications. Wetland rating categories shall not change due to illegal modifications made to the wetland.

## **030 Regulated Activities**

030.A. For any proposed regulated activity, a critical area report may be required to support the requested activity (see Section 060 of this Chapter).

030.B. The following activities are regulated if they occur in a wetland or its buffer:

1. The removal, excavation, grading, or dredging of soil, sand, gravel, minerals, organic matter, or material of any kind
2. The dumping of, discharging of, or filling with any material
3. The draining, flooding, or disturbing of the water level or water table
4. Pile driving
5. The placing of obstructions
6. The construction, reconstruction, demolition, or expansion of any structure
7. The destruction or alteration of wetland vegetation through clearing, harvesting, shading, intentional burning, or planting of vegetation that would alter the character of a wetland

8. Class IV General Forest Practices under the authority of the 1992 Washington State Forest Practices Act Rules and Regulations, WAC 222-12-030, or as thereafter amended

9. Activities that result in:

- a. A significant change of water temperature
- b. A significant change of physical or chemical characteristics of the sources of water to the wetland
- c. A significant change in the timing, frequency, depth, or duration of water entering or within the wetland
- d. The introduction of pollutants

030.C. Subdivisions. The subdivision and/or short subdivision of land where wetlands and/or associated buffers are present are subject to the following:

- 1. Land that is located wholly within a wetland and/or wetland buffer may not be subdivided
- 2. Land that is located partially within a wetland and/or wetland buffer may be subdivided provided that an accessible and contiguous portion of each new lot is:
  - a. Located outside of the wetland and buffer; and
  - b. Meets the minimum lot size requirements of [the zoning code]

#### **040 Exemptions and Allowed Uses in Wetlands**

040.A. Wetlands that meet the following criteria are not subject to the avoidance and minimization requirements of the mitigation sequence (Chapter 070.A.1 and 070.A.2) in accordance with the following provisions, and they may be filled if the impacts are fully mitigated based on the remaining actions in Chapter 070.A.3 through 6. Impacts should be mitigated through the purchase of credits from a mitigation bank or in-lieu fee program, if available, consistent with the terms and conditions of the bank or program. In order to verify whether the following criteria are met, it is essential that a critical area report for wetlands meeting the requirements in Chapter 060 be submitted.

- 1. All Category IV wetlands less than 4,000 square feet that:
  - a. Are located in the areas covered by the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (U.S. Army Corps of Engineers, 2010)
  - b. Are not associated with riparian areas or their buffers
  - c. Are not associated with shorelines of the state or their associated buffers



- d. Are not part of a wetland mosaic
- e. Do not score 6 or more points for habitat function based on the Washington State Wetland Rating System for [Western or Eastern] Washington: 2014 Update (Ecology Publication [#14-06-029 or #14-06-030]), or as revised by Ecology)
- f. Do not contain a Priority Habitat or a Priority Area for a Priority Species identified by the Washington Department of Fish and Wildlife and do not contain state or federally listed species or their critical habitat or species of local importance identified in the [City/County] code [if there is a locally adopted regulation]

2. Wetlands less than 1,000 square feet that meet the above criteria are exempt from the buffer provisions contained in this Chapter.

040.B. Activities Allowed in Wetlands. The activities listed below are allowed in wetlands. These activities do not require submission of a critical area report, except where such activities have the potential to result in a loss of the functions, values or area of a wetland or wetland buffer. These activities include:

- 1. [For counties enrolled in the VSP] Agricultural activities in and around critical areas that are addressed by the implementation of the VSP work plan, or  
[For counties not enrolled in the VSP, and all cities/towns] Existing and ongoing agricultural activities, provided they implement applicable Best Management Practices (BMPs) contained in the latest edition of the USDA Natural Resources Conservation Service (NRCS) Field Office Technical Guide (FOTG); or develop a farm conservation plan in coordination with [the local conservation district]. BMPs and/or farm plans should address potential impacts to wetlands from livestock, nutrients, chemicals, soil erosion, sediment control, and agricultural drainage infrastructure. BMPs and/or farm plans should ensure that ongoing agricultural activities minimize their effects on wetlands, water quality, riparian ecology, salmonid populations, and wildlife habitat.
- 2. Those activities and uses conducted pursuant to the Washington State Forest Practices Act and its rules and regulations, WAC 222-12-030, where state law specifically exempts local authority, except those developments requiring local approval for a Class IV General Forest Practice Permit (conversions) as defined in Chapter 76.09 RCW and Chapter 222-12 WAC, provided conditions of that permit are met.
- 3. Conservation or preservation of soil, water, vegetation, fish, shellfish, and/or other wildlife that does not entail changing the structure or functions of the existing wetland.
- 4. The harvesting of wild crops in a manner that is not injurious to natural reproduction of such crops and provided the harvesting does not require tilling

of soil, planting of crops, chemical applications, or alteration of the wetland by changing existing topography, water conditions, or water sources.

5. Drilling for utilities/utility corridors under a wetland, with entrance/exit portals located completely outside of the wetland buffer, provided that the drilling does not alter the ground water connection to the wetland or percolation of surface water down through the soil column. Specific studies by a hydrologist are necessary to determine whether the ground water connection to the wetland or percolation of surface water down through the soil column will be altered. Trenching is not allowed by this provision.
6. Enhancement of a wetland through the removal of non-native, invasive plant species. Removal shall be restricted to hand removal unless permits from the appropriate regulatory agencies have been obtained for approved biological or chemical treatments or mechanical methods. All removed plant material shall be taken away from the site and disposed of properly. Plants that are on the Washington State Noxious Weed Control Board list of noxious weeds should be handled and disposed of according to a noxious weed control plan appropriate to that species. Re-vegetation with appropriate native species to achieve natural densities is allowed and encouraged in conjunction with removal of invasive plants.
7. Educational and scientific research activities that do not result in altering the structure or functions of the wetland.
8. Normal and routine maintenance and repair of any existing, legally established public or private facilities within an existing right-of-way, provided that the maintenance or repair does not expand the footprint of the facility or right-of-way and has no adverse effect on the wetland or buffer.
9. Stormwater management facilities. A wetland or its buffer can be physically or hydrologically altered to meet the requirements of a Low Impact Development (LID) methodology or Flow Control BMP if **ALL** of the following criteria are met:
  - a. The wetland is classified as a Category IV or a Category III wetland with a habitat score of 3-5 points.
  - b. There will be no net loss of functions and values of the wetland.
  - c. The wetland does not contain a breeding population of any native amphibian species.
  - d. The hydrologic functions of the wetland can be improved as outlined in questions 3, 4, and 5 of Chart 4 and questions 2, 3, and 4 of Chart 5 in Selecting Mitigation Sites Using a Watershed Approach, [Western Washington or Eastern Washington] (Ecology Publication [#09-06-032 or #10-06-007], or as revised); or the wetland is part of a restoration plan intended to achieve restoration goals identified in a shoreline master program or a local or regional watershed plan.

- e. The wetland lies in the natural routing of the runoff, and the discharge follows the natural routing.
- f. All regulations regarding stormwater and wetland management are followed, including but not limited to local and state wetland and stormwater codes, manuals, and permits.
- g. Modifications that alter the structure of a wetland or its soils will require permits. Existing functions and values that are lost will need to be compensated.

Stormwater LID BMPs required as part of new and redevelopment projects may potentially be authorized within wetlands and their buffers. However, these areas may contain features that render LID BMPs infeasible. A site-specific characterization is required to determine whether an LID BMP is feasible at the project site.

040.C. Exceptions. If the application of these regulations would prohibit public facilities such as utilities within a wetland and/or buffer due to a specific service provision or design constraint, the agency or utility may apply for an exception. Exceptions applications must address mitigation sequencing, and include information meeting the review criteria according to the following: [or those found in variance provisions if applicable]

1. There is no other practical alternative to the proposed development with less impact on the critical areas;
2. The application of the critical area regulations would unreasonably restrict the ability to provide utility services to the public;
3. The proposal does not pose an unreasonable threat to the public health, safety, or welfare on or off the development proposal site;
4. The proposal attempts to protect and mitigate impacts to the critical area functions and values consistent with best available science; and
5. The proposal is consistent with other applicable regulations and standards.

040.D. Emergencies. Emergencies are those activities necessary to prevent an immediate threat to public health, safety, or welfare, or that pose an immediate risk of damage to private property and that require remedial or preventive action in a timeframe too short to allow for compliance with the requirements of the critical areas regulations. Emergency actions are required to use reasonable methods to address the emergency with the least possible impact to the critical area. The [Administrator] will require review of the action to determine whether it was beyond the scope of the exemption and may require permits after the fact, which may include restoration or compensatory mitigation.

## 050 Wetland Buffers

050.A. Buffer Requirements. The buffer tables have been established in accordance with the best available science. They are based on the category of wetland and the habitat score [for options 1 and 2] as determined by a qualified wetland professional using the Washington State Wetland Rating System for [Western or Eastern] Washington: 2014 Update (Ecology Publication [#14-06-029 or #14-06-030], or as revised). Unless otherwise noted, the level of impact from adjacent land use is assumed to be high.

### 1. Buffer Width Tables.

See Appendix C (western) or Appendix D (eastern) for buffer approaches and insert the selected buffer table option here.

2. Increased Wetland Buffer Width. Buffer widths shall be increased on a case-by-case basis as determined by the [Administrator] when a wider buffer is necessary to protect wetland functions and values. This determination shall be supported by appropriate documentation showing that it is reasonably related to protection of the functions and values of the wetland. The documentation shall include but not be limited to the following criteria:

- a. The wetland is used by a state or federally listed plant or animal species. These species would be those listed under WAC 220-610-010, 50 CFR 17-11, 50 CFR 17-12, or other state or federal regulations.
- b. The wetland has critical habitat; or a priority area for a priority species as defined by WDFW; or Wetlands of High Conservation Value as defined by the Washington Department of Natural Resources' Natural Heritage Program.
- c. The adjacent land is susceptible to severe erosion, and erosion-control measures will not effectively prevent adverse wetland impacts.
- d. The adjacent land has minimal vegetative cover.
- e. The land has slopes greater than 30 percent.

3. Buffer averaging to improve wetland protection may be permitted when all of the following conditions are met:

- a. The wetland has significant differences in characteristics that affect its habitat functions, such as a wetland with a forested component adjacent to a degraded emergent component or a dual-rated wetland with a Category I area adjacent to a lower-rated area.
- b. The buffer is increased adjacent to the higher-functioning area of habitat or more-sensitive portion of the wetland and decreased adjacent to the lower-

functioning or less-sensitive portion as demonstrated by a critical area report from a qualified wetland professional.

- c. The total area of the buffer after averaging is equal to the area required without averaging.
  - d. The buffer at its narrowest point is never less than either 75 percent of the required width or 75 feet for Category I and II, 50 feet for Category III, and 25 feet for Category IV, whichever is greater.
4. Averaging to allow reasonable use of a parcel may be permitted when all of the following are met:
    - a. No feasible alternatives to the site design could be accomplished without buffer averaging.
    - b. The averaged buffer will not result in degradation of the wetland's functions and values as demonstrated by a critical area report from a qualified wetland professional.
    - c. The total buffer area after averaging is equal to the area required without averaging.
    - d. The buffer at its narrowest point is never less than either 75 percent of the required width or 75 feet for Category I and II, 50 feet for Category III, and 25 feet for Category IV, whichever is greater.

050.B. Allowed Buffer Uses. The following uses may be allowed within a wetland buffer in accordance with the review procedures of this Chapter, provided they are not prohibited by any other applicable law, and they are conducted in a manner so as to minimize impacts to the buffer and adjacent wetland:

1. Conservation or restoration activities aimed at protecting the soil, water, vegetation, or wildlife.
2. Passive recreation facilities designed in accordance with an approved critical area report, including:
  - a. Walkways and trails, provided that they are limited to minor crossings having no adverse impact on water quality. They should be generally parallel to the perimeter of the wetland, located only in the outer twenty-five percent (25%) of the wetland buffer area, and located to avoid removal of significant [as defined in ordinance], old growth, or mature trees. They should be limited to pervious surfaces no more than five (5) feet in width and designed for pedestrian use only. Raised boardwalks utilizing non-treated pilings may be acceptable.
  - b. Wildlife-viewing structures.
3. Educational and scientific research activities.

4. Normal and routine maintenance and repair of any existing public or private facilities within an existing right-of-way, provided that the maintenance or repair does not increase the footprint or use of the facility or right-of-way.
  5. The harvesting of wild crops in a manner that is not injurious to natural reproduction of such crops and provided the harvesting does not require tilling of soil, planting of crops, chemical applications, or alteration of the wetland by changing existing topography, water conditions, or water sources.
  6. Drilling for utilities/utility corridors under a buffer, with entrance/exit portals located completely outside of the wetland buffer boundary, provided that the drilling does not alter the ground water connection to the wetland or percolation of surface water down through the soil column. Specific studies by a hydrologist are necessary to determine whether the ground water connection to the wetland or percolation of surface water down through the soil column would be disturbed.
  7. Enhancement of a wetland buffer through the removal of non-native, invasive plant species. Removal of invasive plant species shall be restricted to hand removal. All removed plant material shall be taken away from the site and appropriately disposed of. Plants that appear on the Washington State Noxious Weed Control Board list of noxious weeds should be handled and disposed of according to a noxious weed control plan appropriate to that species. Revegetation with appropriate native species at natural densities is allowed in conjunction with removal of invasive plant species.
  8. Repair and maintenance of legally established non-conforming uses or structures, provided they do not increase the degree of nonconformity.
- 050.C. Measurement of Wetland Buffers. All buffers shall be measured perpendicular from the wetland boundary as delineated in the field.
- 050.D. Functionally Disconnected Buffer Area. Buffers may exclude areas that are functionally and effectively disconnected from the wetland by an existing public or private road or legally established development, as determined by the [Administrator]. Functionally and effectively disconnected means that the road or other significant development blocks the protective measures provided by a buffer.

Significant developments shall include built public infrastructure such as roads and railroads, and private developments such as homes or commercial structures. The [Administrator] shall evaluate whether the interruption will affect the entirety of the buffer. Individual structures may not fully interrupt buffer function. In such cases, the allowable buffer exclusion should be limited in scope to just the portion of the buffer that is affected. Where questions exist regarding whether a development functionally disconnects the buffer, or the extent of that

impact, the [Administrator] may require a critical area report to analyze and document the buffer functionality.

050.E. Signs and Fencing:

1. Temporary markers. The outer perimeter of the wetland buffer and the clearing limits identified by an approved permit or authorization shall be marked in the field with temporary high-visibility fencing in such a way as to ensure that no unauthorized intrusion will occur. The marking is subject to inspection by the [Administrator] prior to the commencement of permitted activities. This temporary marking shall be maintained throughout construction and shall not be removed until permanent signs, if required, are in place.
2. Permanent signs. As a condition of any permit or authorization issued pursuant to this Chapter, the [Administrator] may require the applicant to install permanent signs along the boundary of a wetland or buffer.
  - a. Permanent signs shall be made of an enamel-coated metal face attached to a metal post or another non-treated material of equal durability. Signs shall be posted at an interval of one (1) every fifty (50) feet, or one (1) per lot if the lot is less than fifty (50) feet wide, and shall be maintained by the property owner in perpetuity. The signs shall be worded as follows or with alternative language approved by the [Administrator]:

**Protected Wetland Area  
Do Not Disturb  
Contact [Local Jurisdiction]  
Regarding Uses, Restrictions,  
and Opportunities for Stewardship**

- b. The provisions of Subsection (a) may be modified as necessary to assure protection of sensitive features or wildlife.
3. Fencing
  - a. The applicant shall be required to install a permanent fence along the boundary of the wetland buffer when adjacent activities could degrade the wetland or its buffer. Examples include domestic animal grazing, unauthorized access by humans or pets, etc.
  - b. Fencing installed as part of a proposed activity or as required in this Subsection shall be designed so as to not interfere with species migration, including fish runs, and shall be constructed in a manner that minimizes impacts to the wetland and associated habitat.

050.F. Buffer Maintenance. Except as otherwise specified or allowed in accordance with this Chapter, wetland buffers shall be retained in an undisturbed or enhanced

condition. In the case of compensatory mitigation sites, removal of invasive, non-native weeds is required for the duration of the mitigation bond (Section 070.J.2.a.x).

050.G. Impacts to Buffers. Requirements for the compensation for impacts to buffers are outlined in Section 070.K of this Chapter.

050.H. Overlapping Critical Area Buffers. If buffers for two critical areas overlap (such as buffers for a stream and a wetland), the wider buffer applies.

## **060 Critical Area Report for Wetlands**

060.A. If the [Administrator] determines that the site of a proposed development includes, is likely to include, or is adjacent to a wetland or wetland buffer, a wetland report, prepared by a qualified wetland professional, shall be required. The expense of preparing the wetland report shall be borne by the applicant.

060.B. Minimum Standards for Wetland Reports. The written report and the accompanying plan sheets shall contain the following information, at a minimum:

1. The written report shall include at a minimum:
  - a. The name and contact information of the applicant; the name, qualifications, and contact information of the primary author(s) of the report; a description of the proposal; identification of all the local, state, and/or federal wetland-related permit(s) required for the project; and a vicinity map for the project.
  - b. A statement specifying the accuracy of the report and all assumptions made and relied upon.
  - c. Documentation of any fieldwork performed on the site, including field data sheets for delineations, rating system forms, baseline hydrologic data, etc.
  - d. A description of the methodologies used to conduct the wetland delineations, wetland ratings, and impact analyses, including references.
  - e. Identification and characterization of all critical areas, water bodies, shorelines, floodplains, and buffers on or adjacent to the proposed project area. For areas off the project site, estimate conditions within 300 feet of the project boundaries using all reliable available information.
  - f. For each wetland identified on site and within 300 feet of the project boundary, provide the completed wetland rating, per Section 020.B of this Chapter; required buffers; hydrogeomorphic classification; wetland area based on the field delineation (area for on-site portion and estimate entire wetland area including off-site portions); Cowardin classifications; habitat elements; soil conditions based on site assessment and/or soil survey information; and to the extent possible, hydrologic information such as



location and condition of inlets/outlets, estimated water depths within the wetland, and estimated hydroperiod patterns based on visual cues (e.g., algal mats, drift lines, flood debris, etc.). Provide area estimates, classifications, and ratings based on entire wetland units, not only the portion present on the proposed project site.

- g. A description of the proposed actions, including an estimation of area of impacts to wetlands and buffers based on the field delineation, and an analysis of site development alternatives, including a no-development alternative.
  - h. An assessment of the probable cumulative impacts to the wetlands and buffers resulting from the proposed development, considering past development and potential future development.
  - i. A description of how mitigation sequencing has been followed, pursuant to Section 070.A, Mitigation Sequencing, of this Chapter.
  - j. An evaluation of the functions of the wetland and its buffer, including references for the method used and data sheets.
  - k. A discussion of the potential impacts to the wetland(s) associated with any anticipated hydroperiod alterations from the project.
2. The site plan sheet(s) shall include, at a minimum:
- a. Maps (to scale) depicting delineated and mapped wetlands and required buffers on site, including buffers for off-site wetlands that extend onto the project site; the development proposal; other critical areas and their buffers; grading and clearing limits; and areas of proposed impacts to wetlands and/or buffers (include square footage or acreage).
  - b. A depiction of the proposed stormwater management facilities and outlets (to scale) for the development, including estimated areas of intrusion into wetland buffers.

## **070 Compensatory Mitigation**

070.A. Mitigation Sequencing. Before being authorized to impact any wetland or its buffer, an applicant must demonstrate that they have implemented mitigation in the following order:

1. Avoid impacts altogether by not taking a certain action or parts of an action.
2. Minimize impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps to avoid or reduce impacts.
3. Rectify impacts by repairing, rehabilitating, or restoring the affected environment.

4. Reduce or eliminate impacts over time by preservation and maintenance operations.
5. Compensate for impacts by replacing, enhancing, or providing substitute resources or environments.
6. Monitor required compensation and take remedial or corrective measures when necessary.

070.B. Requirements for Compensatory Mitigation:

1. Compensatory mitigation for alterations to wetlands shall be used only for impacts that cannot be avoided or minimized and shall achieve equivalent or greater functions. Compensatory mitigation plans shall be consistent with Wetland Mitigation in Washington State—Part 2: Developing Mitigation Plans—Version 1 (Ecology Publication #06-06-011b, or as revised), and Selecting Wetland Mitigation Sites Using a Watershed Approach [Western Washington (Ecology Publication #09-06-32) or Eastern Washington, (Ecology Publication #10-06-007), or as revised].
2. Mitigation ratios, if used, shall be consistent with Subsection H of this Chapter.
3. Mitigation requirements may be determined using the Credit-Debit Method described in Calculating Credits and Debits for Compensatory Mitigation in Wetlands of [Western Washington (Ecology Publication #10-06-011) or Eastern Washington (Ecology Publication #10-06-015), or as revised] consistent with Subsection I of this Chapter.
4. Plantings used in mitigation actions shall be native species appropriate to the ecoregion.
5. The following areas within a proposed compensation site shall not contribute to satisfying the requirements for compensatory mitigation:
  - a. Easements for utility corridors, stormwater facilities, rights-of-way, and streams conveyed underground
  - b. Driveways
  - c. Roads
  - d. Any paved or graveled areas intended to convey vehicle or foot traffic.
6. Buffers on Wetland Mitigation Sites. All wetland mitigation sites shall have buffers consistent with the buffer requirements of this Chapter. Buffers shall be based on the expected or target category of the proposed wetland mitigation site and the expected level of impact from the adjacent land use.

Buffers need to be fully vegetated in order to be included in buffer area calculations. Lawns, walkways, driveways, paved areas, and mowed or developed areas will not be considered buffers or included in buffer area

calculations when assessing whether adequate compensatory mitigation buffers have been provided.

070.C. Compensating for Lost or Affected Functions. Compensatory mitigation shall address the functions affected by the proposed project, with an intention to achieve functional equivalency or improvement of functions. The goal shall be for the compensatory mitigation to provide similar wetland functions as those lost, except when either:

1. The lost wetland provides minimal functions, and the proposed compensatory mitigation action(s) will provide equal or greater functions or will provide functions shown to be limited within a watershed through an existing watershed plan or a local or regional study that characterizes watershed processes; or
2. Out-of-kind replacement of wetland type or functions will best meet watershed goals formally identified by a watershed plan, such as replacement of historically diminished wetland types.

070.D. Approaches to Compensatory Mitigation. Mitigation for lost or diminished wetland and buffer functions shall rely on the approaches listed below:

1. Wetland Mitigation Banks. Credits from a wetland mitigation bank certified under Chapter 173-700 WAC may be used to compensate for impacts located within the service area specified in the mitigation bank instrument if all the following are met:
  - a. The [Administrator] determines that it would provide appropriate compensation for the proposed impacts; and
  - b. The proposed use of credits is consistent with the terms and conditions of the mitigation bank instrument.
  - c. Mitigation ratios are consistent with ratios specified in the mitigation bank instrument.
2. In-Lieu Fee (ILF) Mitigation: Credits from an approved in-lieu fee program may be used when all the following apply:
  - a. The [Administrator] determines that it would provide appropriate compensation for the proposed impacts.
  - b. The proposed use of credits is consistent with the terms and conditions of the approved ILF program instrument.
  - c. Projects using ILF credits shall have debits associated with the proposed impacts calculated by the applicant's qualified wetland professional using the credit assessment method specified in the approved instrument for the ILF program.

d. The impacts are located within the service area specified in the approved ILF instrument.

3. Permittee-responsible, advance mitigation. Advance mitigation is a form of permittee-responsible mitigation implemented before a permitted impact takes place. It is designed to compensate for impacts expected to occur in the future. The applicant proposing the advance mitigation is the only one who can use the credits generated. Credits cannot be sold or transferred to another applicant. Advance mitigation proposals should be developed in accordance with state and federal rules and guidance on advance mitigation (Interagency Regulatory Guide: Advance Permittee-Responsible Mitigation, Ecology Publication #12-06-015, and Chapter 4.2 of Wetland Mitigation in Washington State—Part 1: Policies and Guidance—Version 2, Ecology Publication #21-06-003, or as revised).
4. Permittee-responsible, concurrent mitigation. Concurrent mitigation is a form of permittee-responsible mitigation implemented at the same time permitted impacts are occurring. The permittee is responsible for implementation and success of the compensation. Concurrent mitigation may occur at the site of the permitted impacts or at an off-site location, usually within the same watershed. Permittee-responsible, concurrent mitigation shall be used only if the applicant's qualified wetland professional demonstrates to the [Administrator]'s satisfaction that the proposed approach is ecologically preferable to use of a bank or ILF program, consistent with the criteria in this Section.

070.E. Methods of Compensatory Mitigation. Mitigation for wetland and buffer impacts shall rely on a method listed below in order of preference. A lower-preference form of mitigation shall be used only if the applicant's qualified wetland professional demonstrates to the [Administrator]'s satisfaction that all higher-ranked types of mitigation are not viable, consistent with the criteria in this Section.

1. Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions and environmental processes to a former or degraded wetland. Restoration is divided into two categories:
  - a. Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions and environmental processes to a former wetland. Re-establishment results in rebuilding a former wetland and results in a gain in wetland area and functions. Example activities could include removing fill, plugging ditches, or breaking drain tiles to restore a wetland hydroperiod, which in turn will lead to restoring wetland biotic communities and environmental processes.

- b. Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions and environmental processes to a degraded wetland. Rehabilitation results in a gain in wetland function but does **not** result in a gain in wetland area. The area already meets wetland criteria, but hydrological processes have been altered. Rehabilitation involves restoring historic hydrologic processes. Example activities could involve breaching a dike to reconnect wetlands to a floodplain or return tidal influence to a wetland.
2. Establishment (Creation): The manipulation of the physical, chemical, or biological characteristics of a site to develop a wetland on an upland where a wetland did not previously exist at an upland site. Establishment results in a gain in wetland area and functions. An example activity could involve excavation of upland soils to elevations that will produce a wetland hydroperiod and hydric soils by intercepting groundwater, and in turn supports the growth of hydrophytic plant species.
- a. If a site is not available for wetland restoration to compensate for expected wetland and/or buffer impacts, the [Administrator] may authorize establishment of a wetland and buffer upon demonstration by the applicant's qualified wetland professional that:
    - i. The hydrology and soil conditions at the proposed mitigation site are conducive for sustaining the proposed wetland and that establishment of a wetland at the site will not likely cause hydrologic problems elsewhere;
    - ii. Adjacent land uses and site conditions do not jeopardize the viability of the proposed wetland and buffer (e.g., due to the presence of invasive plants or noxious weeds, stormwater runoff, noise, light, or other impacts); and
    - iii. The proposed wetland and buffer will eventually be self-sustaining with little or no long-term maintenance.
    - iv. The proposed wetland would not be established at the cost of another high-functioning habitat (i.e., ecologically important uplands).
3. Preservation (Protection/Maintenance). The removal of a threat to, or preventing the decline of, wetlands by an action in or near those wetlands. This term includes activities commonly associated with the protection and maintenance of wetlands through the implementation of appropriate legal and physical mechanisms such as recording conservation easements and providing structural protection like fences and signs. Preservation does not result in a gain of aquatic resource area or functions but may result in a gain in functions over the long term. Preservation of a wetland and associated buffer can be used only if:

- a. The [Administrator] determines that the proposed preservation is the best mitigation option;
  - b. The proposed preservation site is under threat of undesirable ecological change due to permitted, planned, or likely actions that will not be adequately mitigated under existing regulations;
  - c. The area proposed for preservation is of high quality or critical for the health and ecological sustainability of the watershed or sub-basin. Some of the following features may be indicative of high-quality sites:
    - i. Category I or II wetland rating (per 020.B of this Section).
    - ii. Rare or irreplaceable wetland type [e.g, peatlands, mature forested wetland, estuaries, vernal pools, alkali wetlands] or aquatic habitat that is rare or a limited resource in the area.
    - iii. The presence of habitat for threatened or endangered species (state, federal, or both).
    - iv. Provides biological and/or hydrological connectivity to other habitats.
    - v. Priority sites identified in an adopted watershed plan.
  - d. Permanent preservation of the wetland and buffer shall be provided through a legal mechanism such as a conservation easement or tract held by an appropriate natural land resource manager/land trust.
  - e. The [Administrator] may approve another legal and administrative mechanism in lieu of a conservation easement if it is determined to be adequate to protect the site.
4. Enhancement. The manipulation of the physical, chemical, or biological characteristics of a wetland to heighten, intensify, or improve specific wetland function(s). Enhancement is undertaken for specified purposes such as water quality improvement, flood water retention, or wildlife habitat. Enhancement results in the gain of selected wetland function(s) but may also lead to a decline in other wetland function(s). Enhancement does not result in a gain in wetland area. Enhancement activities could include planting vegetation, controlling non-native or invasive species, and modifying site elevations to alter hydroperiods in existing wetlands.

Applicants proposing to enhance wetlands and/or associated buffers shall demonstrate how the proposed enhancement will increase the wetland and/or buffer functions, how this increase in function will adequately compensate for the impacts, and how existing wetland functions at the mitigation site will be protected.

- 5. Alternative Types of Mitigation/Resource Tradeoffs. The [Administrator] may approve alternative mitigation proposals that are based on best available science, such as priority restoration plans that achieve restoration goals

identified in the SMP. Alternative mitigation proposals shall provide an equivalent or better level of ecological functions and values than would be provided by standard mitigation approaches. Alternative mitigation approaches shall comply with all reporting, monitoring, and performance measures of this Section including adherence to mitigation sequencing. The [City/County] may consult with agencies with expertise and jurisdiction over the critical areas during the review to assist with analysis and identification of appropriate performance measures that adequately safeguard critical areas. The [Administrator] will consider the following for approval of an alternative mitigation proposal:

- a. Clear identification of how an alternative approach will achieve equal or better ecological benefit.
- b. The proposal uses a watershed approach consistent with Selecting Wetland Mitigation Sites Using a Watershed Approach [Western Washington or Eastern Washington (Ecology Publication #09-06-32 or Publication #10-06-007), or as revised].
- c. All impacts are identified, evaluated, and mitigated.
- d. Methods to demonstrate ecological success are clear and measurable.

070.F. Location of Compensatory Mitigation. Permittee-responsible compensatory mitigation actions shall be conducted using a watershed approach and shall generally occur within the same sub-drainage basin. However, when the applicant can demonstrate that a mitigation site in a different sub-drainage basin is ecologically preferable, it should be used.

The following criteria will be evaluated when determining whether on-site or off-site compensatory mitigation is ecologically preferable. When considering the location of mitigation, preference should be given to using programmatic approaches, such as a mitigation bank or an ILF program.

1. No reasonable opportunities exist on site or within the sub-drainage basin or opportunities on site or within the sub-drainage basin do not have a high likelihood of success based on a determination of the capability of the site to compensate for the impacts. Considerations should include anticipated replacement ratios for wetland mitigation, buffer conditions and required widths, available water to maintain anticipated hydrogeomorphic class(es) of wetlands when restored, proposed flood storage capacity, and potential to mitigate riparian fish and wildlife impacts (such as connectivity);
2. On-site mitigation would require elimination of high-quality upland habitat;
3. Off-site mitigation has a greater likelihood of providing equal or improved wetland functions compared to the altered wetland.

4. Off-site locations shall be in the same sub-drainage basin unless:
  - a. Watershed goals for water quality, flood storage or conveyance, habitat, or other wetland functions have been established by the [City/County] and strongly justify locating mitigation at another site;
  - b. Credits from a state-certified wetland mitigation bank are used as compensation, and the use of credits is consistent with the terms of the certified bank instrument;
  - c. Fees are paid to an approved ILF program to compensate for the impacts.
5. The design for the compensatory mitigation project needs to be appropriate for its position in the landscape. Therefore, compensatory mitigation should not result in the creation, restoration, or enhancement of an atypical wetland.

070.G. Timing of Compensatory Mitigation. It is preferred that compensatory mitigation projects be completed prior to activities that will impact wetlands. At the least, compensatory mitigation shall be completed immediately following wetland impacts and prior to use or occupancy of the action or development. Construction of mitigation projects shall be timed to reduce impacts to existing fisheries, wildlife, and flora.

1. The [Administrator] may authorize a one-time temporary delay in completing construction or installation of the compensatory mitigation when the applicant provides a written explanation from a qualified wetland professional as to the rationale for the delay. An appropriate rationale would include identification of the environmental conditions that could produce a high probability of failure or significant construction difficulties. For example, a project delay that creates conflicts with other regulatory requirements (fisheries, wildlife, stormwater, etc.) or installing plants should be delayed until the dormant season to ensure greater survival of installed materials. The delay shall not create or perpetuate hazardous conditions or environmental damage or degradation, and the delay shall not be injurious to the health, safety, or general welfare of the public. The request for the delay shall include a written justification that documents the environmental constraints that preclude timely implementation of the compensatory mitigation plan. The justification will be verified by the [City/County] who will issue a formal decision.

070.H. Wetland Mitigation Ratios.

See Appendix E for mitigation ratio tables and insert the appropriate tables for your jurisdiction here.



070.I. Credit-Debit Method. To protect functions and values more fully, and as an alternative to the mitigation ratios found in Section 070.H of this Chapter, the [Administrator] may allow mitigation based on the Credit-Debit Method developed by the Department of Ecology in Calculating Credits and Debits for Compensatory Mitigation in Wetlands of [Western Washington (Ecology Publication # 10-06-011) or Eastern Washington (Ecology Publication #11-06-015), or as revised].

070.J. Mitigation Plan. When a project involves wetland and/or buffer impacts, a mitigation plan prepared by a qualified wetland professional shall be required, meeting the following minimum standards:

1. Wetland Critical Area Report. A critical area report for wetlands shall accompany or be included in the compensatory mitigation plan and include the minimum parameters described in Section 060.B of this Chapter, Minimum Standards for Wetland Reports.
2. Mitigation Plan and Plan Sheets. The report shall include a written plan and plan sheets that contain, at a minimum, the elements listed below. Full guidance can be found in Wetland Mitigation in Washington State—Part 2: Developing Mitigation Plans (Version 1) (Ecology Publication #06-06-011b, or as revised).
  - a. The written report shall be prepared by a qualified wetland professional and contain, at a minimum:
    - i. The name and contact information of the applicant; the name, qualifications, and contact information of the primary author(s) of the compensatory mitigation plan; a description of the development proposal; a summary of the impacts and proposed compensation concept; identification of all the local, state, and federal wetland-related permits required for the project; and a vicinity map for the project.
    - ii. Description of how the development project has been designed to avoid, minimize, or reduce adverse impacts to wetlands.
    - iii. Description of the existing wetland and buffer areas proposed to be altered. Include acreage or square footage, water regime, vegetation, soils, functions, landscape position, and surrounding land uses. Also describe impacts in terms of acreage by Cowardin classification, hydrogeomorphic classification, and wetland rating, based on Section 020.B of this Chapter, Wetland Ratings.

- iv. Description of the compensatory mitigation site, including location and rationale for selection. Include an assessment of existing conditions, including acreage or square footage of wetlands and uplands, water regime, sources of water, vegetation, soils, functions, landscape position, and surrounding land uses. Estimate future conditions in this location if the compensation actions are not undertaken.
- v. Surface and subsurface hydrologic conditions, including an analysis of existing and proposed hydrologic regimes for enhanced, established, or restored compensatory mitigation areas. Include illustrations of how data for existing hydrologic conditions were used to determine the estimates of future hydrologic conditions.
- vi. A description of the proposed actions for compensation of wetland and buffer areas affected by the project. Include overall goals of the proposed mitigation, including a description of the targeted functions, hydrogeomorphic classification, and expected categories of wetlands.
- vii. A description of the proposed mitigation construction activities and timing of activities.
- viii. Performance standards (measurable standards for years post-installation) for wetland and buffer areas, a monitoring schedule, a maintenance schedule, and actions proposed by year.
- ix. A discussion of ongoing management practices that will protect wetlands after the development project has been implemented, including proposed monitoring and maintenance programs (for remaining wetlands and compensatory mitigation wetlands).
- x. A bond estimate for the entire compensatory mitigation project, including the following elements: site preparation, plant materials, construction materials, installation and oversight, maintenance at least twice per year for up to ten (10) years, annual monitoring field work and reporting, contingency actions for a maximum of the total required number of years for monitoring, and removal of all non-natural site implements (e.g., irrigation equipment, construction fencing, plant protectors, weed barrier fabric) by the end of the monitoring period.
- xi. Proof of establishment of Notice on Title for the remaining wetlands and buffers on the development project site (if any) and a legal site protection mechanism for the compensatory mitigation areas.

- b. The scaled plan sheets shall contain, at a minimum:
  - i. Mapped, ground-verified edges of the existing wetland and buffers, proposed areas of wetland and/or buffer impacts, and location of proposed wetland and/or buffer compensation actions.
  - ii. Existing topography, ground-verified, at two-foot contour intervals in the zone of the proposed compensation actions if any grading activity is proposed in the compensation area(s). Also include existing cross-sections (estimated one-foot intervals) of wetland areas on the development site that are proposed to be altered and of the proposed areas of wetland and buffer compensation.
  - iii. Conditions expected from the proposed actions on site, including future hydrogeomorphic classes, vegetation community types (e.g., Cowardin class), and future hydroperiods.
  - iv. Required wetland buffers for existing wetlands and proposed compensation areas. Also identify any zones where buffers are proposed to be reduced or enlarged outside of the standards identified in this Chapter.
  - v. A planting plan for the compensation area, including all species by proposed community type and hydroperiod, size and type of plant material to be installed, spacing of plants, typical clustering patterns, total number of each species by community type, and timing of installation.

070.K. Buffer Mitigation Ratios. Impacts to buffers shall be mitigated at a minimum 1:1 ratio. Compensatory buffer mitigation shall replace those buffer functions lost from development.

070.L. Protection of the Mitigation Site. The mitigation area and any associated buffer shall be protected by a legal mechanism such as a critical area tract or a conservation easement. The [Administrator] may approve another legal and administrative mechanism if it is determined to be adequate to protect the site.

070.M. Monitoring. Mitigation monitoring shall be required for a period necessary to establish that performance standards have been met, but not for a period less than five years. If a scrub-shrub or forested vegetation community is proposed, monitoring may be required for ten years or more. The mitigation plan shall include monitoring elements that ensure success for the wetland and buffer functions. If the mitigation goals are not attained within the initially established monitoring period, the applicant remains responsible for managing the mitigation project until the goals of the mitigation plan are achieved.

## **080 Unauthorized Alterations and Enforcement**

080A. When a wetland or its buffer has been altered in violation of this Chapter, all ongoing development work shall stop, and the critical area shall be restored. The [Administrator] shall have the authority to issue a [stop-work] order to cease all ongoing development work and order restoration, rehabilitation, or replacement measures at the owner's or other responsible party's expense to compensate for violation of provisions of this Chapter.

080.B. Requirement for Restoration Plan. All development work shall remain stopped until a restoration plan is prepared and approved by the [Administrator]. Such a plan shall be prepared by a qualified wetland professional using currently accepted scientific principles and shall describe how the actions proposed meet the minimum requirements described in Subsection C below. The [Administrator] may, at the owner's or other responsible party's expense, seek expert advice in determining the adequacy of the plan. Inadequate plans shall be returned to the applicant or other responsible party for revision and re-submittal.

080.C. Minimum Performance Standards for Restoration. The following minimum performance standards shall be met for the restoration of a wetland, when the owner or other responsible party can demonstrate that greater functions and habitat values can be attained, these standards may be modified:

1. The pre-violation structure, functions, and values of the affected wetland shall be restored.
2. The pre-violation soil types and configuration shall be restored to the extent practicable.
3. The wetland and buffers shall be replanted with native vegetation that replicates the pre-violation vegetation in species types, sizes, and densities.
4. Information demonstrating compliance with other applicable provisions of this Chapter shall be submitted to the [Administrator].

080.D. Site Investigations. The [Administrator] is authorized to make site inspections and take such actions as are necessary to enforce this Chapter. The [Administrator] shall present proper credentials and make a reasonable effort to contact the property owner before entering onto private property.

080.E. Penalties. Any person, party, firm, corporation, or other legal entity convicted of violating any of the provisions of this Chapter shall be guilty of a [misdemeanor/civil infraction/etc.].

1. Each day or portion of a day during which a violation of this Chapter is committed or continued shall constitute a separate offense. Any development carried out contrary to the provisions of this Chapter shall constitute a public

nuisance and may be enjoined as provided by the statutes of the state of Washington. The [Administrator] may levy civil penalties against any person, party, firm, corporation, or other legal entity for violation of any of the provisions of this Chapter. The civil penalty shall be [as provided for in City/County code].

2. If the wetland affected cannot be restored, monies collected as penalties shall be deposited in a dedicated account for the preservation or restoration of landscape processes and functions in the watershed in which the affected wetland is located. The [Administrator] may coordinate preservation or restoration activities with other jurisdictions in the watershed to optimize the effectiveness of the restoration action.

## APPENDIX B

Buffer Approaches for Western Washington, Appendix C of Ecology's Wetland Guidance for CAO Updates

## Appendix C. Buffer Approaches for Western Washington

### Option 1

**Table 1. Wetland buffer width requirements, in feet, if Table 2 is implemented and a habitat corridor is provided**

Category of wetland	Habitat score 3-5 points (corridor not required)	Habitat score 6-7 points	Habitat score 8-9 points	Buffer width based on special characteristics
Category I or II: Based on rating of wetland functions (and not listed below)	75	110	225	NA
Category I: Bogs and Wetlands of High Conservation Value	NA	NA	225	190
Category I: Interdunal	NA	NA	225	NA
Category I: Forested	75	110	225	NA
Category I: Estuarine and wetlands in coastal lagoons	NA	NA	NA	150
Category II: Interdunal	NA	NA	NA	110
Category II: Estuarine and wetlands in coastal lagoons	NA	NA	NA	110
Category III: All types except interdunal	60	110	225	NA
Category III: Interdunal	NA	NA	NA	60
Category IV: All types	40	40	40	NA

## Impact minimization measures

Developments that produce the listed disturbances and are requesting a buffer reduction are required to address the disturbance through the use of applicable minimization measures.

This is not a complete list of measures, nor is every example measure required. Though not every measure is required, all effort should be made to implement as many measures as possible. Regulatory staff should determine, in coordination with the applicant, which measures are applicable and practicable.

**Table 2. Impact minimization measures**

<b>Examples of disturbance</b>	<b>Activities and uses that cause disturbances</b>	<b>Examples of measures to minimize impacts</b>
Lights	<ul style="list-style-type: none"><li>• Parking lots</li><li>• Commercial/Industrial</li><li>• Residential</li><li>• Recreation (e.g., athletic fields)</li><li>• Agricultural buildings</li></ul>	<ul style="list-style-type: none"><li>• Direct lights away from wetland</li><li>• Only use lighting where necessary for public safety and keep lights off when not needed</li><li>• Use motion-activated lights</li><li>• Use full cut-off filters to cover light bulbs and direct light only where needed</li><li>• Limit use of blue-white colored lights in favor of red-amber hues</li><li>• Use lower-intensity LED lighting</li><li>• Dim light to the lowest acceptable intensity</li></ul>
Noise	<ul style="list-style-type: none"><li>• Commercial</li><li>• Industrial</li><li>• Recreation (e.g., athletic fields, bleachers, etc.)</li><li>• Residential</li><li>• Agriculture</li></ul>	<ul style="list-style-type: none"><li>• Locate activity that generates noise away from wetland</li><li>• Construct a fence to reduce noise impacts on adjacent wetland and buffer</li><li>• Plant a strip of dense shrub vegetation adjacent to wetland buffer</li></ul>
Toxic runoff	<ul style="list-style-type: none"><li>• Parking lots</li><li>• Roads</li><li>• Commercial/Industrial</li><li>• Residential areas</li><li>• Application of pesticides</li><li>• Landscaping</li><li>• Agriculture</li></ul>	<ul style="list-style-type: none"><li>• Route all new, untreated runoff away from wetland while ensuring wetland is not dewatered</li><li>• Establish covenants limiting use of pesticides within 150 ft. of wetland</li><li>• Apply integrated pest management (These examples are not necessarily adequate for minimizing toxic runoff if threatened or endangered species are present at the site.)</li></ul>



<b>Examples of disturbance</b>	<b>Activities and uses that cause disturbances</b>	<b>Examples of measures to minimize impacts</b>
Stormwater runoff	<ul style="list-style-type: none"> <li>• Parking lots</li> <li>• Roads</li> <li>• Residential areas</li> <li>• Commercial/industrial</li> <li>• Recreation</li> <li>• Landscaping/lawns</li> <li>• Other impermeable surfaces, compacted soil, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Retrofit stormwater detention and treatment for roads and existing adjacent development</li> <li>• Prevent channelized or sheet flow from lawns that directly enters the buffer</li> <li>• Infiltrate or treat, detain, and disperse new runoff from impervious surfaces and lawns</li> </ul>
Pets and human disturbance	<ul style="list-style-type: none"> <li>• Residential areas</li> <li>• Recreation</li> </ul>	<ul style="list-style-type: none"> <li>• Use privacy fencing</li> <li>• Plant dense native vegetation to delineate buffer edge and to discourage disturbance</li> <li>• Place wetland and its buffer in a separate tract</li> <li>• Place signs around the wetland buffer every 50-200 ft., and for subdivisions place signs at the back of each residential lot</li> <li>• When platting new subdivisions, locate greenbelts, stormwater facilities, and other lower-intensity uses adjacent to wetland buffers</li> </ul>
Dust	<ul style="list-style-type: none"> <li>• Tilled fields</li> <li>• Roads</li> </ul>	<ul style="list-style-type: none"> <li>• Use best management practices to control dust</li> </ul>

**Table 3. Wetland buffer width requirements, in feet, for applicants not providing a habitat corridor or implementing measures in Table 2**

<b>Category of wetland</b>	<b>Habitat score 3-5 points</b>	<b>Habitat score 6-7 points</b>	<b>Habitat score 8-9 points</b>	<b>Buffer width based on special characteristics</b>
Category I & II: Based on rating of wetland functions (and not listed below)	100	150	300	NA
Category I: Bogs and Wetlands of High Conservation Value	NA	NA	300	250
Category I: Interdunal	NA	NA	300	NA
Category I: Forested	100	150	300	NA
Category I: Estuarine and wetlands in coastal lagoons	NA	NA	NA	200
Category II: Interdunal	NA	NA	NA	150
Category II: Estuarine and wetlands in coastal lagoons	NA	NA	NA	150
Category III: All types except interdunal	80	150	300	NA
Category III: Interdunal	NA	NA	NA	80
Category IV	NA	NA	NA	50

## Conditions for implementing Tables 1, 2, and 3

1. Wetlands that score 6 points or more for habitat function: the buffers in Table 1 can be used only if all of the following criteria are met:
  - a. A relatively undisturbed, vegetated corridor at least 100 feet wide is protected between the wetland and:
    - i. A legally protected, relatively undisturbed and vegetated area (e.g., Priority Habitats, compensatory mitigation sites, wildlife areas/refuges, national, county, and state parks where they have management plans with identified areas designated as Natural, Natural Forest, or Natural Area Preserve, or
    - ii. An area that is the site of a Watershed Project identified within, and fully consistent with, a Watershed Plan as defined by RCW 89-08-460, or
    - iii. An area where development is prohibited according to the provisions of the local shoreline master program, or
    - iv. An area with equivalent habitat quality that has conservation status in perpetuity, in consultation with WDFW.
  - b. The corridor is permanently protected for the entire distance between the wetland and the shoreline or legally protected area by a conservation easement, deed restriction, or other legal site protection mechanisms.
  - c. Presence or absence of the shoreline or Priority Habitat must be confirmed by a qualified biologist or shoreline Administrator.
  - d. The measures in Table 2 are implemented, as applicable, to minimize the impacts of the adjacent land uses.
2. For wetlands that score 5 or fewer habitat points, only the measures in Table 2 are required for the use of the buffers in Table 1.
3. If an applicant does not apply the mitigation measures in Table 2 or is unable to provide a protected corridor, then the buffers in Table 3 shall be used.
4. The buffer widths in Tables 1 and 3 assume that the buffer is vegetated with a native plant community appropriate for the ecoregion. If the existing buffer is unvegetated, sparsely vegetated, or vegetated with invasive species that do not perform needed functions, the buffer must either be planted to create the appropriate native plant community or be widened to ensure that the buffer provides adequate functions to protect the wetland.

Note: An expanded table with graduated buffer widths based on habitat score is also outlined in the [July 2018 Appendix 8-C](#)<sup>76</sup> of *Wetlands in Washington State, Volume 2*. This is an approach that assigns unique buffer widths to each habitat score in seven increments. It is a gradual increase in buffer width with each point. Compared to Option 1, this avoids a marked increase in buffer width resulting from an increase of one point in the habitat score.

## Option 2

**Table 1. Width of buffers, in feet, needed to protect wetlands from impacts of proposed land uses (used with Table 2)**

Category of wetland	Land use with low impact*	Land use with moderate impact*	Land use with high impact*
I	150	225	300
II	150	225	300
III	75	110	150
IV	25	40	50

\*See Table 2 below for types of land uses that can result in low, moderate, and high levels of impacts to wetlands

**Table 2. Levels of impacts from proposed land use types**

[Local governments are encouraged to ensure the uses in this table match the uses specified in their development and land use regulations and are consistent with the principles in this example.]

Level of impact from proposed land use	Types of land use
High	<ul style="list-style-type: none"> <li>• Commercial</li> <li>• Urban</li> <li>• Industrial</li> <li>• Institutional</li> <li>• Mixed-use developments</li> <li>• Residential (more than 1 unit/acre)</li> <li>• Roads: federal and state highways, including on-ramps and exits, state routes, and other roads associated with high-impact land uses</li> <li>• Railroads</li> <li>• Agriculture with high-intensity activities (dairies, nurseries, greenhouses, growing and harvesting crops requiring annual tilling, raising and maintaining animals, etc.)</li> </ul>

<sup>76</sup> <https://apps.ecology.wa.gov/publications/parts/0506008part3.pdf>

Level of impact from proposed land use	Types of land use
	<ul style="list-style-type: none"> <li>• Open/recreational space with high-intensity uses (golf courses, ball fields, etc.)</li> <li>• Solar farms (utility scale)</li> </ul>
Moderate	<ul style="list-style-type: none"> <li>• Residential (1 unit/acre or less)</li> <li>• Roads: Forest Service roads and roads associated with moderate-impact land uses</li> <li>• Open/recreational space with moderate-intensity uses (parks with paved trails or playgrounds, biking, jogging, etc.)</li> <li>• Agriculture with moderate-intensity uses (orchards, hay fields, light or rotational grazing, etc.)</li> <li>• Utility corridor or right-of-way used by one or more utilities and including access/maintenance road</li> <li>• Wind farm</li> </ul>
Low	<ul style="list-style-type: none"> <li>• Natural resource lands (forestry/silviculture—cutting of trees only, not land clearing and removing stumps)</li> <li>• Open/recreational space with low-intensity uses (unpaved trails, hiking, birdwatching, etc.)</li> <li>• Utility corridor without a maintenance road and little or no vegetation management</li> <li>• Cell tower</li> </ul>

## Option 3

**Table 1. Wetland buffer width requirements, in feet, based solely on wetland category**

Category of wetland	Buffer width
I	300
II	300
III	150
IV	50

# APPENDIX C

Ecology Publication 22-06-014, Appendix E—Mitigation Ratio Tables

## Appendix E. Mitigation Ratio Tables

### Compensation ratios for permanent impacts (western and eastern Washington)

Table 1

Category of impacted wetland (based on score for function)	Re-establishment or creation	Rehabilitation	Preservation	Enhancement
Category I	4:1	8:1	16:1	16:1
Category II	3:1	6:1	12:1	12:1
Category III	2:1	4:1	8:1	8:1
Category IV	1.5:1	3:1	6:1	6:1

Notes:

- Ratios for rehabilitation, preservation, and enhancement may be reduced when combined with 1:1 replacement through re-establishment or creation. See Table 6B-2 in *Wetland Mitigation in Washington State – Part 1: Agency Policies and Guidance –Version 2* (Ecology et al., 2021 or as revised).
- All proposed preservation sites need to meet the preservation criteria listed in Chapter 070.3.E of Appendix A, Sample Wetland Regulations.
- The ratios provide in Table 1 are for permanent, direct impacts to wetlands. For recommended ratios for other types of impacts (e.g., long-term temporary, conversions), see Chapters 6B4.4 through 6B4.8 of *Wetland Mitigation in Washington State – Part 1: Agency Policies and Guidance –Version 2* (Ecology et al., 2021 or as revised).
- The category of impacted wetland is based on scores for functions. Compensation ratios in this table generally do not apply when impacts involve a wetland whose category is based on special characteristics. Compensation ratios for impacts to wetlands with special characteristics are provided in Table 2 below. Specific tables are provided for western and eastern Washington.

## Compensation ratios for unavoidable permanent impacts to wetlands with special characteristics (western Washington)

**Table 2. Western**

Category of impacted wetland (based on special characteristics)	Re-establishment or creation	Rehabilitation	Preservation	Enhancement
Category I forested	6:1	12:1	24:1	24:1
Bogs	NA	NA	24:1	NA
Wetlands of High Conservation Value	Consult with WA DNR	Consult with WA DNR	24:1	Consult with WA DNR
Category I Estuarine wetlands	3:1 (re-establishment only)	6:1	12:1	Limited circumstances (case by case)
Category II Estuarine wetlands	4:1 (re-establishment only)	8:1	16:1	Limited circumstances (case by case)
Category I Interdunal wetlands	4:1	8:1 (limited circumstances)	16:1	Not considered an option
Category II Interdunal wetlands	2:1	4:1 (limited circumstances)	8:1	Not considered an option
Category III and IV Interdunal wetlands	1.5:1	3:1 (limited circumstances)	6:1	Not considered an option
Category I Wetlands in coastal lagoons	4:1 (re-establishment only)	8:1	16:1	Not considered an option
Category II Wetlands in coastal lagoons	3:1 (re-establishment only)	6:1	12:1	Not considered an option

Note: Methods of compensation are limited for certain wetlands with special characteristics. Some of these wetland types only occur naturally and have never been successfully created or rehabilitated. Some may take more than a lifetime to re-establish. Thus, avoidance is the best regulatory approach when addressing these wetlands. Refer to Chapter 6B.5 of Wetland Mitigation in Washington State – Part 1: Agency Policies and Guidance –Version 2 (Ecology et al., 2021 or as revised) for more information on methods of compensation and ratios for wetlands with special characteristics.