

ANACORTES PLANNING COMMISSION



October 23, 2019

Municipal Building Council Chambers

6th Street and "Q" Avenue

AGENDA

6 P.M.

[VIEW PACKET MATERIALS HERE](#)

1. **Roll Call**
2. **Minutes of September 25, 2019**
3. **Correspondence**
4. **New Business**
Introduction and discussion of the Draft Critical Area Ordinance Update

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Planning Commission Public Hearing Minutes for September 25, 2019

This is not a verbatim transcript of the meeting and is written in an attempt to capture the general spirit of the discussion based upon notes and video observation by the author. To view the video recording of this meeting, click [here](https://www.anacorteswa.gov/700/Watch-Meetings), or go to <https://www.anacorteswa.gov/700/Watch-Meetings>.

Chair McNett called the Public Hearing of September 25, 2019 to order at approximately 6 p.m.

Roll Call

Members Present: Commissioners McNett, Graf, Moffitt, MacKenzie, Mount, and Doll

Absent: Commissioner Cleland-McGrath

Minutes

Minutes from September 11, 2019 stand as presented.

Correspondence

None

New Business

Pre-Decision Open Record Public Hearing: Construction of a reinforced concrete bulkhead in front of existing rock (riprap) sea-wall along 3 properties on Croatian Way, Shoreline Substantial Development Permits SDP-2019-0004(4905 Croatian Way), SDP-2019-0005(4907 Croatian Way), and SDP-2019-0006(4911 Croatian Way).

Kevin Cricchio, Senior Planner, provided a briefing on the proposal, including background, project chronology, and zoning. The Commissioners also conducted a site visit on 9/25/2019 concerning this project. No public comments were presented. With no further comment, Chair McNett closed the public hearing for this project at 6:11 PM.

Commissioners discussed project. Commissioner Doll asked questions concerning what the Corps of Engineers would be looking for in their permit. Meg Amos, consultant with Marine Surveys representing the clients for the proposal, stated their applications are in the review process with the Corps of Engineers and is likely the project will not start until next year due to permitting. Commissioner MacKenzie stated after the site visit today he was comfortable with the proposal.

Commissioner McNett made a motion to approve. Commissioner Graf seconded the motion. Motion Passed.

With no further discussion, Chair McNett concluded the meeting at approximately 6:16 p.m.



Planning Commission Agenda Bill

Meeting Date: 10/23/2019 **Agenda Item:** [Click here to enter text.](#)

Subject: Draft Critical Area Ordinance Update: Planning Commission Public Meeting

Staff Contact: Don Measamer, Tess Cooper

Approved for Submittal to PC by	
	Laurie Gere, Mayor
x	Don Measamer, PCED Director
	Darcy Swetnam, City Attorney

Action Type	
	Public Hearing
	Staff Report
X	Discussion
	Action

Summary Statement: Staff will present a reintroduction to the 2016 critical areas regulations update process that is required to be conducted under the periodic update requirements of the Growth Management Act. The attached document is a second draft, and is provided to allow opportunity for public and Planning Commission feedback to inform the continuing development of this document.

Proposed Schedule: The following general process is proposed for public and Planning Commission review

October 23	PC Work Session: Introduction, and General Provisions; public input
November 13	PC Work Session: Wetlands; and Fish & Wildlife Habitat Conservation Areas (FWHCAs), Geologically Hazardous Areas; Critical Aquifer Recharge Areas; and Frequently Flooded Areas, public input
November TBD	SEPA determination; staff to revise draft to incorporate feedback received
November 20	PC Public Hearing: Recommendation to CC (Special Session)
November 27	PC Public Hearing; Continuance if needed

Background: Additional project background information can be viewed on the [project website](https://www.anacorteswa.gov/201/Critical-Areas-Regulations-Update).
(<https://www.anacorteswa.gov/201/Critical-Areas-Regulations-Update>)

Previous Council/Committee/Commission Action: None.

Competing Viewpoints Considered: Previous public comments have been considered and have resulted in proposed changes to the draft regulations. Continued public input is encouraged and welcomed. Informal public comment may be provided at Planning Commission work sessions or in writing to Tess Cooper, tessc@cityofanacortes.org. A formal public hearing will be advertised and held later in the process.

Recommended Motion: None

Attachments:

- Overview of CAO Draft changes
- Critical Area Ordinance Update Draft #2
- BAS Report for Wetlands and FWHCA's (ATSI 11/1/16)
- BAS Report for GHAs, CARAs, and FFAs (GeoEngineers 7/26/17)
- CAO Update Worksheet – GMA (Blank for reference)

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CRITICAL AREA ORDINANCE UPDATE

Users Guide to the Changes

Three categories of changes have occurred in the current draft of the Critical Area Ordinance, and because those changes were too difficult to track with a track changes document, we have outlined them here for you:

- #1: Periodic updates to incorporate changes in State Law (*required*);
- #2: Formatting, organization, and elimination of redundancies (*optional*);
- #3: Functional changes to code provisions, development standards, etc. (*optional*).

Change Type	Review Party
Periodic Updates in State Law	Consultant
Formatting, organization, etc.	Planning Staff
Functional changes to code	Public Hearing, PC, then CC

The list of changes is included for your reference, please become familiar with the entire document however, please focus your attention on reviewing the details of the functional changes as outlined below and providing us with your feedback on that section ONLY.

#1: PERIODIC UPDATES TO NOTE

Critical Area Checklist – GMA Guidance

- Best Available Science reviewed
- State RCW and WAC reviewed

#2: FORMATTING, ORGANIZATION, REDUNDANCY, MISC. CHANGES TO NOTE

- A. New organization of sections – instead of each section repeating general provisions and review procedures we consolidated them into their own chapters applicable to each critical area.
 - 1. General Provisions – all CA's
 - 2. Review Procedures – all CA's
 - 3. Wetland Specifics
 - 4. FWHCA's Specifics
 - 5. Geo Hazards Specifics
 - 6. CARA Specifics
 - 7. FFA's Specifics
- B. Terms changed:
 - Director → Decision maker
 - Shall → must
 - Drainage facility → stormwater management facility
- C. Frequently Flooded Areas incorporated the FEMA BiOP requirements, all of the technical flood zone management information was moved to its own chapter under AMC 19.47.

#3: FUNCTIONAL CHANGES FOR YOUR REVIEW

- A. Reorganization of Exempt Activities (Uses by right), Permitted Alterations, and Reasonable Use Exceptions to include clarification of the appropriate permit processes: Exemptions, Exemptions with prior authorization, Critical Area Permit, Critical Area Variance Permit.

Explanation - All development activities were collected from each chapter and organized into the appropriate categories in the new general provisions chapter. The permit procedure for each category was clarified. **See sections 19.70.035, 19.70.040, and 19.70.045.**

- B. A Critical Area Identification form is added to the review process, this form will be included in all permit applications submitted to the City. This should help the applicant and the City identify potential Critical Areas within the project area that need addressed.

Explanation - Skagit and Island Counties have a similar process, see their forms for examples. **See section 19.70.110**

- C. Critical Area Reports may be subject to third party review at the applicant's expense.

Explanation – We already require this in some circumstances but listing it explicitly in the code helps to warn the applicants upfront and identifying the financially responsible party. **See section 19.70.125(B)**

- D. Alternative Mitigation methods have been added to the mitigation provisions to include off-site mitigation, advanced mitigation, in-lieu fees, and mitigation banking. This allows for the creation of these programs in the future.

Explanation – Section 6.3, Chapter 6 - Determining Appropriate and Adequate Compensatory Mitigation in *the Wetland Mitigation in Washington State – Part 1*, describes the reasoning in support of a watershed approach to mitigation rather than on-site “in-kind” mitigation. And evidence that a better ecological outcome is a result. **See 19.70.135(C)(2)**

- E. Required Wetland Buffers:

1. Habitat scores have been updated to match the 2014 Rating system and no longer requires the conversion chart from the old habitat scores to determine buffer size.
2. The method of determining buffer size has been changed from the basic Ecology recommended method of “assuming a high land use intensity” to determining buffer width with a method of using the variable of land use intensity to incentivize low land use intensity. This approach is supported by BAS and utilizes a similar buffer range to the Ecology range of 225’ – 40’.

Explanation - This allows a more refined determination based on project scope and site circumstances and allows us to reward low impact development. This approach is used by most jurisdictions including Snohomish County, Island County, and City of Bellingham. **See 19.70.250**

- F. We have included a new 10’ setback from the buffer for new buildings and structures.

Explanation – Avoids conflicts with tree branches and/or critical root zones of trees that are in the buffer or will be planted in the buffer. **See 19.70.250(G)**

G. Fish and Wildlife Habitat Conservation Areas – Streams

1. Streams have been designated matching the State DNR water typing classification. Buffers remain the same but there is now a provision to reduce your buffer based on site circumstances. The new designation affects which development activities will be allowed with respect to streams with potential fish habitat, and incentivizes restoring piped watercourses.
2. The measurement of stream buffers is now required from the delineated Ordinary High Water Mark rather than top of bank. Standard measurement is supported by BAS.

Explanation – While there are no major stream systems in Anacortes, and much of the existing condition is altered watercourses, we recognize that development within the urban environment has already impacted the streams and have built in rewards for having intact riparian habitat and efforts to restore modified reaches. **See 19.70.340**

H. Heron Habitats and the March's Point Heronry have incorporated management recommendation from the Skagit Land Trust.

Explanation – Skagit County including the March's Point site, is some of the largest most nesting sites on the West Coast, clarifying the requirements and management recommendations will help to protect these areas. **See 19.70.350**

I. Geologically Hazardous Areas have modified the reduced setback allowance from a minimum of 10 feet to a maximum of 25% reduction and may be subject to third party review.

Explanation – The BAS recommend increasing the reduced setback from 10 feet to at least 15 feet to be more in alignment with other jurisdictions. We have adopted a more conservative allowance that would result in a minimum setback of 37.5 feet. **See 19.70.440(A)(2)(g)**

J. Critical Aquifer Recharge Areas have adopted a method of evaluating hazardous spills in the vicinity of mapped CARA's.

Explanation – Since City potable water source is not from this resource we have very few areas to regulate, but we can regulate the common uses in Anacortes that may affect these areas the greatest. This section was modeled from other jurisdiction's CARA code. **See 19.70.500**

DRAFT Ordinance No. ____

An Ordinance adopting, repealing, and amending AMC Chapter 19.70 and Chapter 17.70 relating to critical areas regulations.

Whereas _____;

Whereas _____;

Whereas _____;

Whereas _____;

Whereas RCW 36.70A.170 and RCW 36.70A.172 provide that the City must designate critical areas and include the best available science in developing policies and development regulations to protect the functions and values of critical areas;

Whereas RCW 36.70A.130 requires continuing review, evaluation and periodic update of development regulations, including critical areas regulations,

Whereas

Now, therefore, the City Council of the City of Anacortes does ordain as follows:

Section 1. The Anacortes Municipal Code is amended as shown in Attachment A.

Section 2. Consistent with RCW 35A.12.130, this ordinance takes effect five days after passage and publication.

PASSED and APPROVED this ____ day of _____, 2019.

CITY OF ANACORTES:

Laurie Gere, Mayor

Attest:

Steve Hoglund, City Clerk-Treasurer

Approved as to Form:

Darcy Swetnam, City Attorney

Attachment A

Amendments to the Anacortes Municipal Code

Chapter 17.70 Critical Areas Regulations are repealed except that

Recodify Article II. – Frequently Flooded Areas (FEMA Approved), AMC 17.70.020 through AMC 17.70.070 to Chapter 19.74 and retitle “Floodplain Management”.

Chapter 19.70 Critical Areas Regulations

The following chapter and sections in Title 19 are created or amended:

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DIVISION 7 – ENVIRONMENT

CHAPTER 19.70 CRITICAL AREAS

GENERAL PROVISIONS

19.70.010 Purpose.

- A. The purpose of this chapter is to designate critical areas and to establish standards for the protection of their functions and values, in compliance with the provisions of the Washington State Growth Management Act of 1990 (Ch. 36.70A RCW), and consistent with the goals and policies of the Anacortes Comprehensive Plan.
- B. By identifying and regulating development and alterations to critical areas and their buffers, this chapter seeks to accomplish the following goals:
 - 1. Protect members of the public and public resources and facilities from injury, loss of life, or property damage due to landslides and steep slope failures, erosion, seismic events, or flooding;
 - 2. Protect, maintain and restore healthy, functioning ecosystems through the protection of unique, fragile, and valuable elements of the environment, including, but not limited to ground and surface waters, wetlands, and fish and wildlife and their habitats, and to conserve the biodiversity of plant and animal species;
 - 3. Direct activities not dependent on critical area resources to less environmentally sensitive sites and mitigate unavoidable impacts to critical areas by regulating alterations in and adjacent to critical areas;
 - 4. Prevent cumulative adverse environmental impacts to water quality, wetlands, and fish and wildlife habitat, and the overall net loss of wetlands, frequently flooded areas, and habitat conservation areas;
 - 5. Alert owners, potential purchasers, real estate agents, appraisers, lenders, builders, developers and other members of the public to natural conditions that pose a hazard or may otherwise limit development;
 - 6. Serve as a basis for exercise of the City's substantive authority under the State Environmental Policy Act (SEPA).
- C. The regulations of this Chapter are intended to protect critical areas in accordance with the Growth Management Act, through the application of best available science, as determined according to [WAC 365-195-900](#) through [365-195-925](#), and in consultation with state and federal agencies and other qualified professionals.

- D. This Chapter is intended to be administered with flexibility and attention to site-specific characteristics. It is not the intent of this Chapter to make a parcel of property unusable by denying its owner reasonable economic use of the property, or to prevent the provision of public facilities and services necessary to support existing development and that planned for by the community without decreasing current service levels below minimum standards.
- E. The City's enactment or enforcement of this Chapter must not be construed for the benefit of any individual person or group of persons other than the general public.

19.70.015 Applicability.

- A. Unless explicitly exempted, the provisions of this chapter apply to all land uses, development activity, and all structures and facilities within the City of Anacortes that are within the maximum buffer distance of, or likely to affect the functions and values of, one or more critical areas.
- B. Relationship to other regulations.
 - 1. Shorelines of the state and shorelands as defined in [RCW 90.58.030](#), and critical areas occurring within the jurisdiction of shorelines of the state and shorelands, are regulated by AMC Title 18.16, Shoreline Master Program, including Appendix A - Shoreline Critical Areas Regulations, as amended.
 - 2. These critical areas regulations apply in addition to zoning and other regulations adopted by the City. Notwithstanding AMC 19.12.040(E), in the event of any conflict between these regulations and any other regulations of the City, the regulations apply that provide greater protection to the critical areas' functions and values, as determined by the Decision Maker.
 - 3. When any provision of this chapter or any existing easement, covenant, or deed restriction conflicts with this chapter, that which provides more protection to the critical areas applies.
 - 4. Compliance with the provisions of this Chapter does not constitute compliance with other federal, state, or local regulations and permit requirements that may be required. The applicant is responsible for complying with other agency requirements, apart from the process established in this Chapter.

19.70.020 Identification, classification, and rating of critical areas.

- A. **Critical Areas Maps.** The general locations of many critical areas in Anacortes are displayed on the City of Anacortes' Critical Areas Maps, which are hereby adopted by reference. The maps are used to alert the public of the potential location of critical areas in Anacortes. As new environmental information related to critical areas becomes available, the City is authorized to make changes as necessary to the Critical Areas Maps.
- B. **Actual site conditions.** Regardless of whether a critical area is shown on the Critical Areas Map, the actual presence or absence of the features defined in this code as critical areas will govern. The City may require an applicant to submit technical information to indicate whether critical

areas actually exist on or adjacent to the applicant's site based on the definitions of critical areas in this code.

- C. **Classification and rating.** To promote consistent application of the standards and requirements of this chapter, critical areas within the City will be rated or classified using best available science according to their characteristics, function and value, and/or their sensitivity to disturbance.
 - 1. Classification of critical areas will be determined by the City using the following tools:
 - a. Application of the criteria contained in these regulations;
 - b. Consideration of the critical area reports submitted by qualified professionals in connection with applications subject to these regulations; and
 - c. Review of maps and other resources adopted pursuant to this chapter.

19.70.025 Protection of critical areas.

- A. Critical areas and their required buffers may not be altered except as allowed by this Chapter.
- B. Any action taken pursuant to this chapter must result in equivalent or greater functions and values of the critical areas associated with the proposed action, as determined by the best available science.
- C. All actions and development must be designed and constructed in accordance with mitigation sequencing per AMC 19.70.135 to achieve no net loss of critical area functions and values.
- D. Applicants must first demonstrate an actual inability to avoid or reduce impacts, before restoration and compensation of impacts will be allowed.
- E. No activity or use may be allowed that results in a net loss of the functions or value of critical areas.
- F. Any individual critical area adjoined by another type of critical area must have the buffer and meet the requirements that provide the most protection to the critical areas involved.

19.70.030 General Requirements

- A. As part of the review, the city will:
 - 1. Verify the information submitted by the applicant;
 - 2. Evaluate the project area and vicinity for critical areas;
 - 3. Determine whether the proposed project is likely to impact the functions or values of critical areas; and
 - 4. Determine if the proposed project adequately addresses the impacts and avoids impacts to the critical area associated with the project.
- B. If the proposed project is within, adjacent to, or is likely to impact a critical area, the city will:

1. Require a critical area report from the applicant that has been prepared by a qualified professional, to be reviewed and evaluated;
2. Determine whether the development proposal conforms to the purposes and performance standards of this chapter, including the criteria in **AMC 19.70.030, Review criteria;**
3. Assess the potential impacts to the critical area and determine if they can be avoided or minimized; and
4. Determine if any mitigation proposed by the applicant is sufficient to protect the functions and values of the critical area and public health, safety, and welfare concerns consistent with the goals, purposes, objectives, and requirements of this chapter.

19.70.035 Critical Areas Review.

- A. **When required.** A proposal to modify any critical area and/or required buffer including, but not limited to, clearing, grading, draining, removal of vegetation, construction of structures, utilities and related infrastructure must require a critical area permit unless it qualifies as an exemption, as provided **in AMC 19.70.035.**
- B. **Best Management Practices.** All activities, including those allowed without critical areas review, must be conducted using the best management practices appropriate for that activity that result in the least amount of impact to the critical areas. Best management practices must be used for tree and vegetation protection, construction management, erosion and sedimentation control, water quality protection, and regulation of chemical applications. The use of best management practices is required to ensure that the activity does not result in degradation to the critical area. Appropriate BMP sources include Ecology's Construction Storm Water General Permit and NRCS Conservation Practices. Any incidental damage to, or alteration of, a critical area and/or buffer must be restored, rehabilitated, or replaced at the responsible party's expense.
- C. **Modifications to Existing Nonconforming Structures and Uses.** Existing structures and uses that were established legally but do not meet the current critical area, buffer, or buffer setback requirements may continue in accordance to AMC 19.49.040, and may be modified as follows:
 1. Routine maintenance and repairs;
 2. Structural modifications or additions that do not intensify the nonconformity of the structure or increase the area of hardscape lying within the critical area or buffer. The Decision maker may require an updated critical areas report to confirm location of buffers and that the addition is located entirely outside the critical area or buffer;
 3. Vertical additions above the ground floor that do not encroach further into the critical area or buffer beyond the existing exterior walls, except that critical areas review is required for additions in landslide hazard areas or buffers;
 4. Restoration or replacement of a structure that is damaged by fire, natural disaster or other calamity when:

- a. A complete application for reconstruction or replacement is submitted within one year of the damage; and
 - b. The restoration or replacement is made to conform to the current critical areas regulations, or if such regulations cannot be physically met without reducing the size of the building, the restoration or replacement may not intensify any nonconformity that existed prior to the damage.
 - c. Except that critical areas review is required for restoration and replacement in landslide hazard areas or buffers.
- D. **Demolition.** Demolition of structures located within critical areas or their buffers is permitted, excluding demolition of structures necessary to support or stabilize landslide hazard areas. Subject to approval of a stormwater pollution prevention plan consistent with the adopted stormwater management manual and clearing limits that will adequately protect the critical area.

19.70.040 Exempt Activities.

- A. **General requirements for all exempt activities.** Activities listed in this section are exempt from the rest of the provisions of this chapter only if they meet the specific terms of this section.
- B. To be exempt from this chapter does not give permission to degrade a critical area or buffer or to ignore risk from natural hazards. All exempt activities must use reasonable methods to avoid potential impacts to critical areas and buffers. In every case, disturbance to the critical area must be minimized through best management practices and the use of low-impact equipment.
- C. Any incidental damage to, or alteration of, a critical area or buffer that is not a necessary outcome of the exempted activity must be restored, rehabilitated, or replaced at the responsible party's expense.
- D. This chapter may not exempt this activity from the provisions of other agency permit requirements such as Washington Department of Fish and Wildlife Hydrologic Permit, or Army Corp of Engineers regulatory requirements.
- E. Table 19.70.040 Exempt Activities

Table 19.70.040 describes activities that must meet the precise description to be allowed without following a critical area process. Activities are divided into the categories of permitted in the Critical Area and permitted in the Buffer, marked by a yes or no in the appropriate column.

EXEMPT ACTIVITIES: (No review required, must strictly meet standards)	Critical Area	Buffer
Emergencies. Alterations in response to emergencies which threaten the public health, safety, and welfare or which pose an imminent risk of damage to private property, and that require remedial or preventative	Yes	Yes

EXEMPT ACTIVITIES: (No review required, must strictly meet standards)	Critical Area	Buffer
action in a timeframe too short to allow for compliance with the requirements of this chapter, if the following requirements are met: a. Only the minimum intervention necessary to reduce the risk to public health, safety, or welfare and/or the imminent risk of damage to private property may be authorized by this exemption. b. The alteration undertaken must be reported to the Decision maker no later than 30 days after the alteration has occurred. Once notified, the Decision maker must confirm that an emergency existed and determine what, if any, additional applications and/or measures are required of the property owner to protect the critical area(s) consistent with the provisions of this chapter, and to repair any damage to a pre-existing resource. c. If the Decision maker determines that the action taken, or any part of the action taken, was beyond the scope of an allowed emergency action, the Decision maker may take action to enforce this chapter consistent with AMC Title 19 and AMC Title 20. d. After the emergency, the person or agency undertaking the action must fully fund and conduct necessary site evaluations and critical area reports, mitigation plans, and restoration for any impacts to the critical area and buffers resulting from the emergency action. The person or agency undertaking the action must meet the review procedures contained herein. Mitigation activities must be initiated within one year of the date of the emergency or as directed by the Department.		
Yard and garden activities. Maintenance or repair activities including, but not limited to, cutting, mowing lawns, weeding, removal of noxious and invasive species, harvesting and replanting of garden crops, pruning and planting of noninvasive ornamental vegetation or indigenous native species to maintain the general condition and extent of such areas; provided, that such maintenance or repair activities are limited to legally existing landscaping improvements and do not further expand into critical areas or associated buffers, do not alter topography, do not destroy or clear native vegetation, do not remove non-hazard trees in the buffer or critical area, and do not diminish water quality or quantity. a. Native growth protection areas, mitigation sites, or other areas protected via permit conditions, conservation easements or similar restrictive covenants (as defined in AMC 19.70.145) are not covered by this exemption.	No	Yes

EXEMPT ACTIVITIES: (No review required, must strictly meet standards)	Critical Area	Buffer
b. If an activity has ceased for one year or more any future use of such land, building or structure must thereafter be in conformity in the zone in which it is located.		
Site Investigation. Minimal site investigative work and studies necessary for preparing land use applications, including, but not limited to, surveys, soil logs and borings, percolation tests, water quality studies, scientific research, wildlife studies, and similar tests and investigations; provided that such activities do not require clearing, fill, construction of new roads, or heavy equipment, and only minimal amounts of excavation and disturbed areas must be immediately restored.	Yes	Yes
Passive Outdoor Activities. When it can be demonstrated that there will be no adverse effect, the following activities are allowed within critical areas and their buffers: educational activities, scientific research, and outdoor recreational activities, including but not limited to interpretive field trips, bird watching, public beach access including water-related activities, bicycling, and hiking. This exemption does not include constructing new roads or trails, vegetation clearing, or collection of plants or animals.	Yes	Yes

EXEMPTIONS That require a letter of exemption be obtained from the decision maker prior to construction or initiation of activities. Subject to conditions by the Decision maker to ensure compliance with this chapter.	Critical Area	Buffer
Utility Operation, Maintenance, Repair, or Replacement. Public water, electric, and natural gas distribution, public stormwater and sewer collection, cable communications, telephone, utility and related activities undertaken pursuant to City-approved best management practices, and best available science with regard to protection of threatened and endangered species, as follows: a. Normal and routine maintenance or repair of existing utility structures or rights-of-way; when the activity does not involve the expansion of facilities or improvements into a previously unimproved portion of critical areas or required buffers; b. Replacement, operation, repair, modification, installation or construction in an improved City road right-of-way or City authorized private roadway of all electric facilities, lines, equipment or appurtenances, not including substations, with an associated voltage of 55,000 volts or less; to include relocation only when required by the City	Yes	Yes

EXEMPTIONS That require a letter of exemption be obtained from the decision maker prior to construction or initiation of activities. Subject to conditions by the Decision maker to ensure compliance with this chapter.	Critical Area	Buffer
of Anacortes, which approves the new location of the facilities; c. Relocation of public sewer or stormwater local collection, public water local distribution, natural gas, cable communication or telephone facilities, lines, pipes, mains, equipment or appurtenances, only when required by the City of Anacortes, which approves the new location of the facilities; d. Replacement, operation, repair, modification, relocation, installation or construction of public sewer or stormwater local collection, public water local distribution, natural gas, cable communication, or telephone facilities, lines, pipes, mains, equipment or appurtenances when such facilities are located within an improved public right-of-way or City-authorized private roadway; e. Repair and maintenance of existing private connections to public utilities and private stormwater management facilities; f. Regular maintenance of stormwater facilities that are within a segment of a regulated stream, such as conveyance ditches/swales within the right of way or within public drainage easements		
Transportation Infrastructure Operation, Maintenance, Repair, or Replacement. Maintenance, operation, repair, modification, or replacement of publicly improved roadways or City-authorized private roadways, including the road prism and associated stormwater management systems; as long as any such alteration does not involve expansion of roadways or related improvements into previously unimproved rights-of-way or portions of rights-of-way, and does not alter a critical area or required buffer, or watercourse, such as culverts or bridges, or result in the transport of sediment or increased stormwater. Retention and replanting of native vegetation must occur whenever possible along the right-of-way improvement and resulting disturbance	Yes	Yes
Recreation Areas Operation, Maintenance, Repair, or Replacement. Maintenance, operation, repair, modification, or replacement of existing Non-Motorized trails, and existing facilities within publicly improved recreation areas, such as the Anacortes Community Forest Lands and public parks, may be performed subject to the following:	Yes	Yes

EXEMPTIONS That require a letter of exemption be obtained from the decision maker prior to construction or initiation of activities. Subject to conditions by the Decision maker to ensure compliance with this chapter.	Critical Area	Buffer
a. The activity does not involve the expansion of facilities and disturbance to adjacent areas is minimized and disturbed areas must be immediately restored; b. Work is conducted using best management practices; c. Flow and circulation patterns and biological characteristics are not impaired and adverse impacts are minimized;		
Vegetation Management Including: 1. Removal of noxious weeds or invasive vegetation, as identified by the Washington State or Skagit County Noxious Weed Control Board, in a wetland buffer, stream buffer, other fish and wildlife habitat conservation areas and buffers, is allowed when: a. Undertaken with hand labor, including handheld mechanical tools, and integrated pest management; b. Plants that appear on the Washington State or Skagit County Noxious Weed Control Board lists must be handled and disposed of in accordance with the best management practices appropriate to that species and approved by the City when permit review is applicable; c. Areas cleared by removal of noxious and/or invasive plant species must be revegetated with site-appropriate native species at natural densities and the site must be stabilized against erosion in accordance with the stormwater manual adopted by the City; d. All work performed is above the ordinary high water mark and above the top of a stream bank; and e. The following limits may not be exceeded: Within City-owned property, no more than 3,000 square feet of soil may be exposed at any one time; and within private property, not more than 500 square feet of area may be cleared, as calculated cumulatively, over one year, without a permit and critical area report prepared by a qualified professional. 2. Vegetation management consistent with a previously approved critical area mitigation, restoration, remediation, or enhancement plan that requires ongoing maintenance and vegetation management beyond final inspection and the required monitoring period for the permitted project. 3. Hazard Trees. a. The felling of hazard trees may be permitted when necessary to:	Yes	Yes

EXEMPTIONS That require a letter of exemption be obtained from the decision maker prior to construction or initiation of activities. Subject to conditions by the Decision maker to ensure compliance with this chapter.	Critical Area	Buffer
i. Control fire; or ii. Halt the spread of disease or damaging insects consistent with 76.09 RCW; or iii. Avoid a threat to existing structures, above ground utility lines or other facilities. iv. Remove an actual threat to life or property from slope instability that would be caused by toppling. b. Unless there is an emergency pursuant to Emergency Exemptions above, the landowner must first obtain prior written approval from the Department. A tree risk assessment prepared by an ISA certified Arborist must be submitted by the applicant to the Department that includes the following information: i. Identification of the tree(s) proposed to be removed; ii. A conclusion that the condition constitutes an actual threat to life or property; iii. An assessment of whether a portion of the tree suitable for a snag for wildlife habitat may be safely retained. iv. If a tree to be removed provides priority habitat, such as an eagle perch or occupied nest, a description of timing and methods of removal that will minimize and mitigate impacts. v. If a tree to be removed is located within a landslide hazard area or buffer, an evaluation of potential impacts on slope stability must be completed by a qualified professional, including recommendations for replanting and other measures to avoid adverse impacts to slope stability. c. All work must be done using handheld implements only, unless the property owner requests and the Decision maker approves otherwise in writing. d. Any removed tree or vegetation must be replaced in-kind, with similar or appropriate native species, within 1 year in accordance with an approved restoration plan including species, size, and maintenance plan including species, size, and maintenance plan.		

EXEMPTIONS That require a letter of exemption be obtained from the decision maker prior to construction or initiation of activities. Subject to conditions by the Decision maker to ensure compliance with this chapter.	Critical Area	Buffer
Clearing, grading, and the construction of fences and arbors are allowed within the required 10-foot stream setback for a piped stream segment if no other critical area or buffer is present.	No	Yes

19.70.050 Permitted Alterations.

- A. **Applicability.** An applicant may seek an alteration of a critical area and/or critical area buffer through a permitted alteration when application of the standards renders compliance with these provisions as infeasible and the proposed development meets the specific terms of this section and can be considered a reasonable use.
- B. **General requirements.** The actions in the permitted alteration table below, must be considered permitted alterations, provided they are consistent with the general standards for mitigation sequencing and other applicable requirements established in this chapter.
- C. **Review Process:**
 1. A critical area permit must be required for all permitted alterations. Requests for such permits must be reviewed using the procedures outlined in chapter 19.20, table 19.20.030. No permit must be issued unless it can be shown that the proposed development is fully consistent with the requirements of this chapter.
 2. In addition to other project related documents, all permitted alterations must require a critical area assessment report per section 19.70.___ to evaluate the permitted alteration. The report must include:
 - a. A description of the function and condition of the critical area and or buffer that would be altered;
 - b. An analysis of the effect of the development proposal on the critical area and or buffer;
 - c. A description of actions that can be taken to modify the development proposal to avoid or reduce the alteration of the critical area and/or buffer and a discussion of whether these modifications are practical and reasonable;
 - d. A mitigation plan as required by this chapter.
 3. **Burden of proof.** The burden of proof is on the applicant to bring forth evidence in support of the application and upon which any decision has to be made on the application.
 4. **Public comment.** The City must ensure the opportunity for public comment, including that from appropriate Federal, State, and Tribal natural resource agencies, to ensure the use of best available science before deciding on approval.

D. **Decision criteria.** Alterations to critical areas and/or buffer width requirements of this Chapter may only be issued if the applicant demonstrates that all of the following criteria are met:

1. Special circumstances applicable to the subject property, including size, shape, or topography, and the strict application of this chapter is found to deprive the subject property of rights and privileges enjoyed by other properties in the vicinity; provided, however, that the fact that those surrounding properties have been developed under regulations in force prior to the adoption of this chapter may not be the sole basis for granting approval;
2. The issuance of a variance to zoning requirements (setback, height, coverage, etc.) by itself will not provide sufficient relief to avoid the need for a permitted alteration to the critical area and/or buffer and other requirements for the critical areas regulated by this Chapter;
3. Mitigation sequencing per AMC 19.70.135(A) has been applied;
4. The proposed alteration is supported by best available science; and
5. The proposed alteration allows for development of the subject parcel with the least impact on critical areas while providing a reasonable use of the property.

E. **Conditions may be required.** In granting any approval, conditions and safeguards may be prescribed as are necessary to secure adequate protection of critical areas from adverse impacts, and to ensure conformity with this chapter.

F. Table 19.70.040 Permitted Activities.

Table 19.70.040 describes activities that must meet the precise description to be allowed with following the prescribed critical area process. Activities are divided into the categories of permitted in the Critical Area and permitted in the Buffer, marked by a yes or no in the appropriate column.

Permitted Alterations: (Critical Area Permit Required – Type 2 Administrative Decision)	Critical Area	Buffer
Buffer Modifications including: increased buffer width, buffer averaging, and buffer alterations as described specifically in this chapter.	No	Yes
Public Services. To allow development by a public agency when the strict application of the standards in this Chapter would otherwise unreasonably prohibit the provision of public amenities. 1. Public agency and services defined. For the purposes of this subsection, “public agency” means any agency, political subdivision, or unit of local government, or private utility regulated by the Washington Utilities and Transportation Commission, including, but not limited to, municipal corporations, special purpose districts and local service districts, private regulated utilities, any agency of the state of Washington, the United States or any state thereof, or any Indian tribe recognized as such by the federal government. “Public services” include, but are not limited to, water supply, sewer and stormwater management facility, electric power, telephone, cable television, gas, and transportation for persons and freight.	Yes	Yes

Permitted Alterations: (Critical Area Permit Required – Type 2 Administrative Decision)	Critical Area	Buffer
2. Public services may be allowed to alter critical areas and buffers when: a. Mitigation sequencing per AMC 19.70.135(A) has been applied; b. The application of the critical areas regulations would unreasonably restrict the ability of the public agency to provide public services; c. There is no other practical alternative to the proposed development with less impact on the critical area; d. The proposed development does not create a health or safety hazard on or off the development site, and will not be detrimental to the properties or improvements in the vicinity; e. Any alterations permitted to the critical area are mitigated in accordance with AMC 19.70.135 and relevant mitigation standards for the impacted critical areas(s) type; f. The proposal is consistent with the Anacortes Comprehensive Plan and other applicable regulations. g. Conditions authorized. Conditions may be established as necessary to mitigate impacts to critical areas and to conform to the standards required in this Chapter.		
Conservation, Restoration, and Fish Habitat Enhancement Projects. Conservation or restoration activities aimed at protecting or enhancing the soil, water, vegetation, or wildlife; including voluntary fish, wildlife, and wetland restoration or enhancement activities not required as project mitigation that have been approved by the U.S. Fish and Wildlife Service, the Washington State Department of Ecology, Washington State Department of Fish and Wildlife, or other appropriate local, state, federal, or tribal jurisdiction and/or that meet the criteria of RCW 77.55.181(1) and that are reviewed and approved according to the provisions of RCW 77.55.181. A Biological Evaluation Report is required to determine whether the proposal would conserve, preserve, or enhance critical area functions in the long-term to minimize temporary environmental impacts.	Yes	Yes
Chemical Applications. Chemical applications. The application of herbicides, pesticides, organic or mineral-derived fertilizers, or other hazardous substances, if necessary for the control of nuisance weeds and algae; except that their use will be restricted in accordance with the State Department of Ecology and State Department of Fish and Wildlife Management recommendations, and regulations of the State Department of Agriculture and the U.S. Environmental Protection Agency.	Yes	Yes

Permitted Alterations: (Critical Area Permit Required – Type 2 Administrative Decision)	Critical Area	Buffer
Recreational Areas / Facilities. Low impact activities which are consistent with the purpose and function of the critical area buffer and do not detract from its integrity may be permitted within the buffer depending on the sensitivity of the critical area. A. Limited public park or public recreational access including trails, viewing platforms, fishing access (no wider than 6 foot), and foot bridges, provided that all of the following are satisfied: a. The area/facility is part of a public park that is dependent on its location for recreational function; and b. The area/facility is limited to the minimum necessary to accomplish the recreational function; and c. The removal of trees and native vegetation is minimized; and d. The balance of the development is consistent with other requirements of this chapter; and e. The project is identified in the Anacortes Comprehensive Plan or Parks and ACFL Master Plans. B. Private pedestrian walkways and public trails must meet the following standards: a. The trail is generally parallel to the perimeter of the critical area; b. The trail is located in the outer 25% of the buffer area and is designated to avoid removal of trees and native vegetation; c. The trail does not exceed 6 feet in width, and is limited to native soils or pervious surfaces. Raised boardwalks utilizing non-treated pilings may be acceptable; and The trail may be subject to closure during critical spawning, migration or breeding time periods of sensitive species that are present. C. Informational signs. Construction and placement of informational signs or educational demonstration facilities no more than 9 square feet surface area and 4 feet high, as long as there is no permanent infringement on hydrology or stream flow; D. Limited excavating and filling necessary for the repair and maintenance of piers, walkways, observation decks, wildlife management shelters, boathouses, and other similar water related structures, provided they are built on pilings to allow unobstructed flow of water and preserve	No	Yes
Single family Residences and necessary appurtenances. New single family dwellings on existing legal lots may intrude into critical areas or their buffers when all of the following conditions are met: a. It is demonstrated that it is not feasible to avoid the critical area or buffer through avoidance or buffer averaging, and the	Y	Y

Permitted Alterations: (Critical Area Permit Required – Type 2 Administrative Decision)	Critical Area	Buffer
development is the minimum necessary to achieve reasonable use of the lot as determined by the Planning Decision maker; and b. Alteration of critical areas and their buffers including all clearing, grading and structures, has not and will not exceed cumulatively 2800 square feet; and c. This action does not allow critical areas or their buffers to be converted to lawn or residential landscaping beyond a minimal area needed to maintain an approved structure; and d. Mitigation sequencing provided in the Chapter is applied and the proposal includes on-site mitigation to the extent feasible as determined by the Critical Area Report.		

19.70.055 Reasonable use exception variance.

- A. **Applicability.** If the application of this Chapter would result in denial of all reasonable and economically viable use of a property, and if such reasonable and economically viable use of the property cannot be obtained by consideration of a permitted alteration pursuant to AMC 19.70.040, then a landowner may seek a reasonable use exception from the standards of this Chapter. Reasonable use exceptions are considered a critical area variance and are intended as a last resort and only when a variance can meet the requirements of this Chapter.
- B. **General Requirements.** Reasonable use is a legal concept articulated by federal and state courts in regulatory takings cases. Within the context of these cases and for the purposes of this title, reasonable use means uses allowed by the underlying zoning designation and subdivision of property is not allowed. When no possible alternative exists, a reasonable use exceptions must be considered a critical area variance, provided they are consistent with the general standards for variances under 19.38.040 and other applicable requirements established in this chapter.
- C. **Review process:**
1. A variance permit must be required for all reasonable use exceptions. Requests for such permits must be reviewed using the procedures applicable to Type 3 Hearing Examiner decisions outlined in chapter AMC 19.20.030. No permit must be issued unless it can be shown that the proposed development is fully consistent with the variance approval criteria enumerated in AMC Section 19.38.040 (variance criteria) as well as all of the requirements of this chapter.
 2. In addition to other project related documents, all permitted alterations must require a critical area assessment report per section AMC 19.70.125 to evaluate the permitted alteration. The report must include:

- a. A description of the function and condition of the critical area and or buffer that would be altered;
 - b. An analysis of the effect of the development proposal on the critical area and or buffer;
 - c. A description of actions that can be taken to modify the development proposal to avoid or reduce the alteration of the critical area and/or buffer and a discussion of whether these modifications are practical and reasonable;
 - d. A mitigation plan as required by this chapter.
3. Burden of proof. The burden of proof is on the applicant to bring forth evidence in support of the application and upon which any decision has to be made on the application.
 4. The City must ensure the opportunity for public comment, including that from appropriate Federal, State, and Tribal natural resource agencies, to ensure the use of best available science before deciding on approval.
- D. **Variance criteria.** A reasonable use exception may be granted only if the applicant demonstrates that all of the requested action is consistent with all of the variance approval criteria as set forth:
- a. The application of this chapter would deny all reasonable economic use of the property and that there is no reasonable economically viable use with a lesser impact on the critical area than that proposed; and
 2. Special conditions and circumstances exist that are peculiar to the land, the lot, or something inherent in the land, and that are not applicable to other lands subject to the provisions of this chapter; and
 3. The inability of the applicant to derive reasonable use of the property is not the result of actions by the current or previous owner in subdividing the property or adjusting a boundary line, thereby creating the undevelopable condition, after the effective date of the ordinance codified in this Chapter; and
 4. Any proposed modification to a critical area will be evaluated through consideration of a critical areas report and mitigation plan prepared by a qualified professional pursuant to the requirements of this Chapter, and will be the minimum necessary to allow reasonable and economically viable use of the property. The critical areas report and mitigation plan must be prepared utilizing best available science; and
 5. Mitigation sequencing per AMC 19.70.135(A) has been applied, and the proposal mitigates impacts on the critical area to the maximum extent possible, while still allowing reasonable use of the lot; and
 6. The proposed development does not pose a threat to the public health and safety; and

7. The applicant has demonstrated that the criteria in AMC 19.38.040 (variance criteria) are met; and
 8. Granting the variance requested will not confer on the applicant any special privilege that is denied by this chapter to other lands, structures, or buildings under similar circumstances; and
 9. The granting of the variance is consistent with the general purpose and intent of the Anacortes Comprehensive Plan, and planning policies.
- E. **Conditions.** Conditions of approval may be included as part of the decision, including modifications to the size and placement of structures and facilities to minimize impacts to critical areas and associated buffers and mitigation requirements that ensure that all impacts are mitigated to the maximum extent feasible utilizing best available science.
- F. **Variances – Geologically hazardous areas.** A variance must not authorize development within a geologically hazardous area or required setback or buffer from a geologically hazardous area unless a Qualified Professional has determined the development will not pose a threat to public safety.

CRITICAL AREAS REVIEW PROCEDURES

19.70.110 Critical area identification form.

Prior to the City's consideration of any proposed activity allowed pursuant to Permitted Activities AMC 19.70.040 or found not to be exempt under AMC 19.70.035, the applicant must submit to the Department a completed form identifying suspected critical areas on, and within 300 feet, of the site.

19.70.125 Critical Area Report.

- A. **Report required.** When the Decision maker determines a proposed development is within, abutting, or is likely to adversely affect a critical area or buffer pursuant to the provisions of this chapter, he/she must have the authority to require a critical areas assessment report, prepared by a Qualified Professional. The assessment of critical areas and analysis of impacts must be commensurate with the value or sensitivity of a particular critical area and relative to the scale and potential impacts of the proposed activity. This provision is not intended to expand or limit an applicant's other obligations under [WAC 197-11-100](#).
- B. **Third Party Review of Critical Area Reports.** The Decision maker may require, at the applicant's expense, a third-party review of a critical area report by a Qualified Professional under contract with or employed by the City in any of the following circumstances:
1. The project requires a critical area permit, or critical area variance; or
 2. Third party review is specifically required by the provisions of this chapter for the critical area(s) or critical area buffer(s) potentially being impacted; or

3. When the Decision maker determines that such services are necessary to demonstrate compliance with the standards and guidelines of this chapter or other appropriate regulations.

C. Critical Area Report Types or Sections. Critical area report requirements may be met in stages through multiple reports or combined in one report. A critical area report must include one or more of the following sections or report types unless exempted by the Decision maker based on the extent of the potential critical area impacts. The scope and location of the proposed project will determine which report(s) alone or combined are sufficient to meet the critical area report requirements for potentially impacted critical area type(s). The typical sequence of required sections or reports that will fulfill the requirements of this section include:

1. **Reconnaissance.** The existence, general location, and type of critical areas on, adjacent to, or likely to be impacted by activities on a project site. Determination of whether the project will adversely impact or be at risk from the potential critical areas based on maximum potential buffers for the particular critical area type. Possible application of exemptions should also be addressed;
2. **Delineation.** The extent, boundaries, rating or classification, and applicable standard buffers of critical areas where the project area could potentially impact the critical area or its buffer including an assessment of the characteristics of or functions and values of the critical area and buffers identified;
3. **Analysis.** The proposal and impact assessment report documenting the potential project impacts to the critical area and buffers including a discussion of the efforts taken to avoid, minimize, and reduce potential impacts to those areas per AMC 19.70.125(A);
4. **Mitigation.** The measures that prevent or compensate for the potential impacts of the project designed to meet the requirements of this chapter, AMC 19.70.135, Mitigation Plan Requirements, and the standards for the specific critical areas impacted. Mitigation includes, but is not limited to, adjustments to required buffer sizes, best practices to minimize impacts, and critical area or buffer enhancement, restoration, or preservation plans. Mitigation plans include but are not limited to habitat management plans, revegetation or replanting plans, and restoration plans;
5. **Maintenance and Monitoring.** The goals of the mitigation proposed, performance standards for success, monitoring methods and reporting schedule, and contingency actions. Maintenance and monitoring plans must be consistent with the mitigation performance standards and requirements of this

chapter, including the specific mitigation plan requirements outlined in each critical area type section.

D. Minimum Report Requirements. At a minimum, critical area reports must contain the following information:

1. The names and qualifications of the persons preparing the report and documentation of any fieldwork performed on the site;
2. A description of the proposal, proposal location including address and parcel number(s), and a vicinity map for the project;
3. Identification and characterization of all critical areas, water bodies, shorelines, and buffers on or within 300 feet of the proposed project area, The Decision maker may require critical area and buffer dimensions be accurately surveyed, depending on the scope of the project;
4. Documentation of any fieldwork performed on the site, including field data sheets, for delineations, rating system forms, baseline hydrologic data, site photos, etc.;
5. A statement specifying the accuracy of the report and all assumptions made and relied upon;
6. A description of methodologies used to conduct the critical areas investigation, including references;
7. A scaled drawing of critical areas and buffer identified in the report including buffers for off-site critical areas that extend onto the project site.

E. Existing reports. Critical areas assessment reports must generally be valid for a period of five years. Unless otherwise provided, a critical areas report may incorporate, be supplemented by, or composed of any reports or studies required by other laws and regulations or previously prepared for and applicable to the development proposal site, as approved by the Decision maker. At the discretion of the Decision maker, reports previously compiled or submitted as part of a proposal for a development may be used as a critical areas report to the extent that the requirements of this section and the requirements for each specific critical area type are met. Supplemental critical area report(s) may be required to provide information or analysis to address changes to the project scope, potential impacts or to changes to applicable regulations that have been made subsequent to existing, valid critical area reports, or other circumstances.

F. Modifications to Report Requirements. The applicant may consult with the Decision maker, prior to or during preparation of the critical areas report, to obtain approval of modifications to the required contents of the report where, in the judgement of a qualified professional, more or less information is required to adequately address the potential critical area impacts and required mitigation.

4. In some cases, such as when it is determined that no specific critical area is present, a full report may not be necessary to determine compliance with the critical area regulations, and in those cases a letter or reconnaissance only report may be required.
5. Limitations to study area. The Decision maker may limit the required geographic area of the critical areas report as appropriate if:
 - a. The applicant, with assistance from the City of Anacortes, cannot obtain permission to access properties adjacent to the project area; or
 - b. The proposed activity will affect only a limited part of the project site.

19.70.130 Application Requirements.

A. A complete application for a critical area permit or critical area variance permit must include the following information and materials on a form provided by the Decision maker. For the purpose of this section, a complete application includes:

1. The name and contact information of the applicant;
2. Adequate information to determine compliance with the requirements of the critical area regulations, including a critical area report, impact and hazard assessment, and mitigation requirements specific to each critical area type, as indicated in the corresponding sections of this chapter;
3. Identification of the development permit(s) requested and all other local, State, and/or Federal critical area-related permits required for the project;
4. Site plan, a scaled drawing of the development proposal including:
 - a. Property and project site boundaries.
 - b. An accurate depiction of all critical areas, including off-site critical areas and buffers that extend onto the project site, a desk survey is acceptable when access to the adjacent property has been denied.
 - c. The development proposal, including grading and clearing limits and areas of proposed impacts to critical areas and/or buffers (include square footage estimates).
 - d. A scaled depiction and description of the proposed stormwater pollution prevention plan consistent with the adopted stormwater manual, for the development and consideration of impacts to critical areas due to drainage alterations;
5. An assessment of probable impacts to the critical areas resulting from the proposed development of the site based upon identified findings;

6. A description of reasonable efforts made to apply mitigation sequencing pursuant to AMC 19.70.135, Mitigation requirements, to avoid, minimize, and mitigate impacts to critical areas; and
7. Plans for mitigation required to offset any critical areas impacts, in accordance with AMC 19.70.140, Mitigation plan requirements, and the corresponding mitigation performance standards sections of this chapter, including a discussion of the applicable development standards and cost estimates for determination financial guarantee requirements.

B. **Additional Requirements.** The Decision maker may require additional information to be included in the critical areas permit submittal when determined to be necessary to the review of the proposed activity in accordance with this chapter. Additional information that may be required includes, but is not limited to:

1. Historical data, including original and subsequent mapping, historical aerial photographs, data compilations and summaries, and available reports and records relating to the site or past operations at the site;
2. Grading and stormwater management plans; and
3. Information specific to the type, location, and nature of the critical area.

19.70.135 Mitigation requirements.

Mitigation must be sufficient to restore impacted functions and values, or compensate for the impacted functions and values of the critical area and to prevent risk from a hazard posed to a critical area by the proposed activity. Mitigation must not be implemented until after the Decision maker has provided approval of a critical areas report that includes a mitigation plan.

A. **Mitigation sequencing.** This section applies to mitigation required with all critical areas reviews, approvals, and enforcement pursuant to this chapter. This section is supplemented with specific measures under subchapters for particular critical area types. Mitigation for specific development proposals may include a combination of the measures below and must be designed and constructed in accordance with the provisions of this section. Before impacting any critical areas, an applicant must demonstrate that the following actions have been taken in the following sequential order:

1. Avoiding the impact altogether by not taking a certain action or parts of actions;
2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation by using appropriate technology, or by taking affirmative steps, such as project redesign, relocation, or timing, to avoid or reduce impacts;
3. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment or by restoring or stabilizing the critical area through natural, engineering, or other methods;

4. Reducing or eliminating the impacts or hazard over time by preservation and maintenance operations during the life of the action;
 5. Compensating for the impact by replacing, enhancing, or providing substitute resources or environments; and/or
 6. Monitoring, measuring and reporting the impact to the Decision maker and taking appropriate corrective measures.
- B. Applicants must first demonstrate an inability to avoid or reduce impacts before the use of actions to mitigate potential impacts will be allowed. No activity or use may be allowed that results in a net loss of the functions or values of a critical area.
- C. **Type, Location and Timing of Mitigation.** Unless it is demonstrated that higher level of ecological functioning or greater reduction of hazard risk would result from an alternative approach or as otherwise allowed in this chapter, mitigation for adverse impacts must be based on best available science and must be in-kind, on-site, and prior to the activities that will disturb the critical area. Mitigation measures that cannot be implemented prior to the critical area impacts must be completed immediately following disturbance and prior to use or occupancy of the action or development. Construction of mitigation projects must be timed to reduce impacts to existing fisheries, wildlife, and flora.
1. The Decision maker may authorize a one-time temporary delay in completing construction or installation of the mitigation when the applicant provides a written explanation from a qualified professional as to the rationale for the delay and satisfactory financial guarantee that the installation will occur. An appropriate rationale would include identification of the environmental conditions that could produce a high probability of failure or significant construction difficulties (e.g. project delay lapses past a fisheries window, or installing plants should be delayed until the dormant season to ensure greater survival of installed materials). The delay must not create or perpetuate hazardous conditions or environmental damage or degradation, and the delay must not be injurious to the health, safety, or general welfare of the public.
 2. **Alternative mitigation approaches.** If the applicant can demonstrate that off-site concurrent or advance mitigation would provide a higher level of ecological functioning or a greater reduction of hazard risk, off-site mitigation that occurs on Fidalgo Island will be considered by the Decision maker.

19.70.140 Mitigation plan requirements

When mitigation is required, the applicant must submit for approval by the City a mitigation plan as part of the critical area report. The mitigation plan must include:

- A. **Environmental Goals and Objectives.** The mitigation plan must identify environmental goals and objectives of the mitigation proposed and including:

1. A description of the anticipated impacts to the critical areas, the mitigating actions proposed, and the purposes of the compensation measures, including the site selection criteria; identification of compensation goals; identification of resource functions; and dates for beginning and completion of site compensation construction activities. The goals and objectives must be related to the functions and values of the impacted critical area; and
2. A review of the best available science supporting the proposed mitigation and a description of the report author's experience to date in restoring or creating the type of critical area proposed.

B. Performance Standards. The mitigation plan must include measurable specific criteria for evaluating whether or not the goals and objectives of the mitigation project have been successfully attained at the end of the required monitoring period and whether or not the requirements of this chapter have been met.

C. Detailed Construction Plans. In order to convey proposed construction techniques and anticipated final outcome, the mitigation plan must include written specifications, descriptions, and drawings of the mitigation propose, including:

1. The proposed construction sequence, timing, and duration;
2. Best management practices including erosion and sediment control features to be implemented;
3. Site plans showing grading and excavation details, slope gradient, and final grade elevations with minimum two-foot contour intervals;
4. Cross-sectional drawings;
5. A planting plan specifying plant species, quantities, locations, size, spacing, and density; and
6. Measures to protect and maintain plants until established.

D. Monitoring Program and Contingency Plan. A monitoring and contingency plan is required for all projects requiring mitigation.

1. The mitigation plan must include a monitoring program to be implemented by the applicant to determine the success of the mitigation project and any necessary corrective actions. This program must determine if the original goals and objectives of the mitigation plan are being met.
2. A contingency plan must be established for indemnity in the event that the mitigation project is inadequate or fails. Contingency plans include identification of potential courses of action, and any corrective measures to be taken if monitoring or evaluation indicates project performance standards are not being met. Corrective measures must be taken when the qualified professional indicates, in a monitoring

report, that the contingency actions are needed to ensure project success by the end of the monitoring period. A performance and maintenance bond, or other acceptable financial guarantee, is required to ensure the applicant's compliance with the terms of the mitigation agreement consistent with AMC 19.70.160, financial guarantee requirements.

3. Monitoring programs prepared to comply with this section must include the following requirements:
 - a. Best available scientific procedures must be used to establish the success or failure of the project. A protocol outlining the schedule for site monitoring (for example, monitoring must occur in years zero (as-built), one, three, and five after site construction), and how the monitoring data will be evaluated to determine if the performance standards are being met.
 - b. For vegetation determinations, permanent sampling points must be established.
 - c. The monitoring program must include measurable specific criteria, or performance standards, for evaluating whether or not the goals and objectives of the mitigation plan have been successfully attained.
 - d. A monitoring report must be submitted as needed to document milestones, successes, problems, and contingency actions of the mitigation project. Monitoring reports on the current status of the mitigation project must be submitted, consistent with Subsection (e) of this section, to the City on the schedule identified in the monitoring plan, but not less than every other year. The reports are to be prepared by a qualified professional and reviewed by the City, or a qualified professional retained by the City, and should include monitoring information on wildlife, vegetation, water quality, water flow, stormwater storage and conveyance, and existing or potential degradation, as applicable.
 - e. Monitoring programs must be established for a period necessary to establish that performance standards have been met, but not for less than a minimum of five years without approval from the Decision maker. A longer monitoring period may be required depending on the mitigation goals.
 - f. If necessary, failures in the mitigation project must be corrected.
 - g. Dead or undesirable vegetation must be replaced with appropriate plantings.
 - h. Damage caused by erosion, settling, or other geomorphological processes must be repaired.

- i. The mitigation project must be redesigned (if necessary) and the new design must be implemented and monitored, as in subsection (D)(3)(d) of this section.
- j. Correction procedures must be approved by the Decision maker; the decision maker may request review by a qualified professional.
- k. If the mitigation goals are not obtained within the initial monitoring period, the applicant remains responsible for restoration of the impacted values and functions or hazard risk reduction until the mitigation goals agreed to in the mitigation plan are achieved.

E. Monitoring Reports. Monitoring reports must be submitted to the City consistent with the approved monitoring plan.

- 1. The as-built report, required prior to final inspection, must, at a minimum, include documentation of the following:
 - a. Departures from the original approved plans;
 - b. Construction supervision provided by the qualified professional;
 - c. Approved project goals and performance standards;
 - d. Baseline data for monitoring per the approved monitoring methods;
 - e. Photos from established photo points; and
 - f. A site plan showing final mitigation as constructed or installed, monitoring points, and photo points.
- 2. Subsequent monitoring reports must, at a minimum, include:
 - a. Monitoring visit observations, documentation, and analysis of monitoring data collected;
 - b. Photos from established photo points;
 - c. Determination whether performance standards are being met; and
 - d. Maintenance and/or contingency action recommendations to ensure success of the project at the end of the monitoring period.
- 3. The applicant is responsible for reimbursement of the cost of review of monitoring reports and site inspections during the monitoring period which are completed by the City or a qualified professional under contract with or employed by the City.

F. Cost Estimates. The mitigation plan must include cost estimates that will be used by the City to calculate the amounts of financial guarantees, if necessary, to ensure that the mitigation plan is fully implemented. Financial guarantees ensuring fulfillment of the compensation project, monitoring program, and any contingency measures must be posted in accordance with AMC 19.70.160, financial guarantee requirements.

- G. **Approved Mitigation Projects – Signature.** On completion of construction, an as-built report for any approved mitigation project must be prepared and signed off by the applicant’s qualified professional and approved by the City. Signature of the qualified professional on the required as-built report and approval by the Decision maker indicates that the construction has been completed as planned.

19.70.145 Title Notice.

A. Generally. A critical area notice on title is required, as a condition of permit issuance or project approval, when a permit or development application is submitted for development on any property containing a critical area or buffer. The purpose is to inform subsequent purchasers of real property of the existence of critical areas.

1. The title notice requirement can be met through recording of a title notice on forms prepared by the City, establishment of a critical area tract, or recording of a native growth protection area easement, consistent with AMC 19.70.145(B) through (D) below, as applicable.
2. The following must be noted on all critical area title notice documents:
 - a. Identification of ownership and long term maintenance responsibility of critical areas, buffers, and permanent field markings (e.g. fencing, signage);
 - b. Restrictions on development, vegetation removal, and application of hazardous substances (pesticides, herbicides, fertilizers) within the critical areas and buffers;
 - c. The right of the City to enforce the terms of the restrictions.

B. Title Notice. The title notice applicable to the property must be approved by the Decision maker and City Attorney for compliance with this provision and be filed by the property owner, at their expense, with the Skagit County Auditor’s Office. The title holder will have the right to challenge this notice and to have it extinguished if the critical area designation no longer applies. However, the titleholder is responsible for completing a critical area report, subject to approval by the Decision maker, before the notice on title can be extinguished. The title notice runs with the land.

C. Critical Area Tract. Subdivisions, short subdivisions, and binding site plans must establish a separate critical areas tract as a permanent protective measure for wetlands, fish and wildlife habitat conservation areas, and landslide hazard areas and their buffers. The plat or binding site plan for the project must note the long-term ownership/maintenance responsibility as well as clearly depict the critical areas tract, including all of the subject critical area, any required buffer, and any additional lands included voluntarily as part of the project. Should the critical area tract include several types of critical areas, separate critical areas tracts must be identified.

D. Native Growth Protection Area (NGPA). NGPA easements are required on a property where no subdivision, short subdivision, or binding site plan is proposed or required. Unless otherwise

required in this chapter, NGPA easements must be recorded on title for all affected parcels prior to approval of a development application or building permit, when two or more dwelling units and/or nonresidential development are proposed on one parcel, to delineate and protect critical areas and their buffers. The easement to be recorded must clearly depict the critical area(s), required buffer(s) and the limits of the NGPA easement.

19.70.150 Field marking.

- A. **Temporary field marking during construction.** The outer perimeter of the critical area buffer and the clearing limits identified by an approved permit or authorization must be marked in the field with temporary “clearing limits” fencing in such a way as to ensure that no unauthorized intrusion will occur. The marking is subject to inspection by the Decision maker prior to the commencement of permitted activities. This temporary marking and fencing must be maintained throughout construction and may not be removed until permanent fencing and/or signs, if required, are in place.
- B. **Permanent field marking.** The Decision maker may require installation of permanent signs, markers, and fencing along the outer perimeter of a critical area or its buffer when it is determined necessary to protect the critical areas’ functions and values. Permanent markings must be installed prior to final project approval or occupancy, as determined by the Decision maker.
 - 1. **Signs.** All critical areas tracts, easements, and dedications, should be clearly marked on the site using permanent markings, as follows:
 - a. Signs must be placed at least every 50 feet, with a minimum of one per lot, which include the following text, or similar, as approved by the Decision maker:

City of Anacortes Designated Critical Area. Activities, including clearing and grading, removal of vegetation, pruning, cutting of trees or shrubs, planting of nonnative species, and other alterations may be prohibited. Help protect and care for this area. Please contact the City of Anacortes with questions or concerns.
 - b. Signs must be made of an enamel-coated metal face and attached to a metal post or another non-treated material of equal durability.
 - 2. **Fencing.** Permanent fencing should be designed so as not to interfere with species migration or wildlife movement, unless exclusion fencing is more pertinent, and constructed in a manner that minimizes impacts to the critical areas and buffers. Proposed fencing type and materials will be determined on a case by case basis and must be approved by the Decision maker prior to installation.
- C. **Maintenance and replacement.** It is the responsibility of the landowner, successors, or as otherwise assigned to maintain in perpetuity and replace, if necessary, all permanent fencing and field markings.

19.70.155 Construction plan review, monitoring, and inspection.

- A. The Decision maker may require project building and construction plans be reviewed by a qualified professional for confirmation of consistency with the critical areas report and recommendations prior to approval of construction plans.
- B. The Decision maker may require monitoring by a qualified professional during site alteration activities within, or adjacent to, critical areas or buffers, and/or a final inspection report by the qualified professional stating that construction has or has not implemented the design recommendations provided in the project critical areas report, and evaluation of any deviation from the recommendations.
- C. When the Decision maker determines that such services are necessary to demonstrate compliance with the standards and guidelines of this chapter, they will be at the applicant's expense.

19.70.160 Financial Guarantee Requirements.

When determined necessary by the Decision maker, bonds, and other financial guarantees, and associated performance agreements or maintenance/defect/monitoring agreements are required for projects with required mitigation or restoration of impacts to critical areas or critical area buffers consistent with the following:

- A. A performance agreement and bond, or other acceptable financial guarantees, are required from the applicant when mitigation required pursuant to a development proposal is not completed prior to final permit approval, such as final plat approval or final building inspection. The amount of the performance bond(s) must equal 125 percent of the cost of the mitigation project.
- B. A performance agreement and bond, or other acceptable financial guarantees, are required from the applicant when restoration is required for remediation of a critical area violation. The amount of the performance bond(s) must equal 125 percent of the cost of the mitigation project.
- C. A maintenance/defect/monitoring agreement and bond, or other acceptable financial guarantees, are required to ensure the applicant's compliance with the conditions of the approved mitigation plan pursuant to a development proposal or restoration plan for remediation of a violation. The amount of the maintenance bond(s) must equal 125 percent of the cost of the mitigation project in addition to the cost for monitoring for a minimum of five years. The monitoring portion of the financial guarantee may be reduced in proportion to work successfully completed over the period of the bond. The bonding period must coincide with the monitoring period.

19.70.170 Unauthorized Critical Area Alterations.

- A. When a critical area or its buffer has been altered in violation of this chapter, all development work must stop and the critical area and buffer must be restored. The Decision

maker may issue a stop work order to cease all development, and order restoration measures at the owner's or other responsible party's expense to remediate the impacts of the violation of the provisions of this chapter.

B. Requirement for Restoration Plan.

1. All development must remain stopped until a restoration plan is prepared by the responsible party and an approved after the fact permit is issued by the City. Such a plan must be prepared by a qualified professional using the best available science and must describe how the actions proposed meet the minimum requirements described in subsection C of this section.
2. The Decision maker may, at the responsible party's expense, seek expert advice, including but not limited to third party review by a qualified professional under contract with or employed by the City, in determining if the plan meets the minimum performance standards for restoration. Submittal, review, and approval of required restoration plans for remediation of violations of this chapter must be completed through a site development permit application process.

C. Minimum Performance Standards for Restoration.

1. For alterations to critical aquifer recharge areas, wetlands, and fish and wildlife habitat conservation areas, the following minimum performance standards must be met for the restoration:
 - a. The pre-violation function and values of the affected critical areas and buffers must be restored, including but not limited to hydrologic, water quality and habitat functions;
 - b. The pre-violation soil types and configuration must be replicated;
 - c. The critical area and buffers must be replanted with a native vegetation community that reproduces the structure, species content and condition of the pre-violation vegetation community. Based on the historical or pre-violation vegetation community, native plant species must be replaced at minimum of a 5:1 ratio or installed at a density of 5 foot-on-center unless approved by the Decision maker. The pre-violation functions and values should be replicated at the location of the alteration; and
 - d. Information demonstrating compliance with the requirements in AMC 19.70.140, Mitigation plan requirements, and the applicable mitigation sections for the affected type(s) of critical area(s) and their buffer(s) must be submitted to the Decision maker with a complete site development permit application.
 - e. These standards may be modified by the Decision maker when it can be demonstrated that greater functional and habitat values can be obtained.

2. For alterations to special flood hazard and geologically hazardous areas, the following minimum performance standards must be met for the restoration of a critical area:

- a. The hazard must be reduced to a level equal to, or less than, the pre-violation hazard;
- b. Any risk of personal injury resulting from the alteration must be eliminated or minimized; and
- c. The hazard area and buffers must be replanted with native vegetation sufficient to minimize the hazard.
- d. These standards may be modified by the Decision maker if the violator can demonstrate that greater safety can be obtained.

D. Site Investigation. The Decision maker is authorized to take such actions as are necessary to enforce this chapter. The Decision maker (or Decision maker's authorized representative) must present proper credentials and obtain permission before entering onto private property.

E. Penalties. Any responsible party violating the provisions of this chapter may be subject to applicable penalties per AMC Title 20 Civil Enforcement and Penalties plus the following:

- 3. A square footage cost of \$3.00 per square foot of impacted critical area buffer; and a square footage cost of \$15.00 per square foot of impacted critical area; and
- 4. A per tree penalty in the amount of \$3,000 per non-significant tree and \$9,000 per Significant Tree, for trees removed, or otherwise damaged, within a critical area or buffer in violation of the provisions of this chapter.

19.70.175 Final Decision and Appeals.

- A. **Completion of the critical area review.** The city's determination regarding critical areas pursuant to this chapter is final concurrent with the final decision to approve, condition, or deny the underlying permit for the development proposal or other activity involved.
- B. **Appeals.** Any decision to approve, condition, or deny a development activity proposal or other activity based on the requirements of this chapter may be appealed according to, and as part of, the appeal procedure for the underlying permit or approval involved.

WETLANDS

19.70.200 Wetlands – Description and Purpose.

It is the purpose of this Chapter to protect the functions and values of wetlands, which serve many important ecological and environmental functions and help to protect public health, safety, and welfare by providing flood storage and conveyance, and erosion control, while also providing fish and wildlife habitat, recreation, water quality protection, water storage, education, scientific research opportunities and other public benefits.

19.70.210 Wetlands - Designation and Rating.

A. Designation. All areas meeting the definition of a wetland and the wetland identification criteria pursuant to this chapter, regardless of any formal identification, are hereby designated critical areas and are subject to the provisions of this chapter.

B. Rating. Wetlands must be rated by a qualified professional according to the Washington State Department of Ecology Wetland Rating System for Western Washington - 2014 Update (Ecology Publication #14-06-029, October 2014), or as revised. Wetland rating categories will be applied as the wetland exists on the date of adoption of the rating system by the City, as the wetland naturally changes in accordance with permitted activities.

1. **Category I.** Category I wetlands are those that represent unique or rare wetland types, are more sensitive to disturbance than most wetlands, are relatively undisturbed and contain ecological attributes that are impossible to replace within a human lifetime, or provide a high level of functions. The following types of wetlands are Category I:
 - a. Relatively undisturbed estuarine wetlands larger than one acre;
 - b. Wetlands of high conservation value identified by scientists of the Washington Natural Heritage Program/Department of Natural Resources (DNR);
 - c. Bogs;
 - d. Mature forested wetlands larger than one acre;
 - e. Wetlands in coastal lagoons; and
 - f. Wetlands that perform many functions well and have a total score of 23 points or more in the wetland rating.
2. **Category II.** Category II wetlands are those wetlands that are difficult, though not impossible, to replace, and provide high levels of some functions. The following types of wetlands are Category II:
 - a. Estuarine wetlands smaller than 1 acre or disturbed estuarine wetlands larger than 1 acre;

- b. Wetlands with a moderately high level of functions and a total score of 20 to 22 points in the wetland rating.
 - c. Wetlands in coastal lagoons that are relatively undisturbed and equal to or smaller than 1/10 ac (4350 square feet).
- 3. **Category III.** Category III wetlands are those with a moderate level of functions, generally have been disturbed in some ways, can often be adequately replaced with a well-planned mitigation project, and are often less diverse or more isolated from other natural resources in the landscape than Category II wetlands. The following types of wetlands are Category III:
 - a. Wetlands with a moderate level of functions with a total score of 16 to 19 points in the wetland rating.
- 4. **Category IV.** Category IV wetlands have the lowest levels of functions and are often heavily disturbed, with a total score of 15 points or less in the wetland rating. The functions provided by Category IV wetlands are generally easier to replace, and in some cases can be improved. However, experience has shown that replacement of functions cannot be guaranteed in any specific case. These wetlands may provide some important functions that need protected.
- B. **Illegal Modifications.** When a violation occurs wetland rating categories do not change due to illegal modifications or alterations. A wetland's category must be based on the pre-violation condition of the wetland.

19.70.220 Wetlands – Mapping and delineation.

- A. **Mapping.** The approximate location and extent of potential wetlands are shown in the wetland data layer maintained in the City of Anacortes geographic information system (GIS). In addition, the following maps and inventories, that depict areas of hydric soils and potential wetland areas, are hereby adopted by reference as amended:
 - 1. Soils maps produced by the U.S. Department of Agriculture, National Resources Conservation Service; and
 - 2. The National Wetlands Inventory, produced by the U.S. Fish and Wildlife Service.
- B. **Reference Only.** The maps and resources cited above are to be used as a guide for the Department, project applicants, and/or property owners and may be continuously updated as new critical areas are identified. They are a reference and do not provide a final critical area designation.
- C. **Identification and Delineation.** Identification of wetlands and delineation of their boundaries pursuant to this chapter must be done in accordance with the adopted Federal wetland delineation manual and applicable regional supplements per WAC [173-22-035](#). The exact location of a wetland's boundary must be determined through the performance of a field investigation by a qualified professional. Evidence documenting the results of the

boundary survey, including evidence of a lack of wetland indicators if no wetlands are identified, must be submitted to the City.

19.70.230 Wetlands – General Development Standards.

- A. All development activities and uses are prohibited in wetlands and wetland buffers, except as provided for in this chapter, and only when it is demonstrated that the activity will not result in a loss of the functions and values of the wetland through the application of mitigation sequencing in AMC 19.70.135.
- B. **Exemptions.** Exemptions to this chapter are listed in the provisions established in AMC 19.70.035 Exemption activities.
- C. **Subdivisions.** The subdivision and/or short subdivision of land in wetlands and associated buffers are subject to the following:
 - 1. Land that is located wholly within a wetland and/or its buffer may not be subdivided; and
 - 2. Land that is located partially within a wetland and/or its buffer may be subdivided; provided they meet the minimum lot size calculations as required in AMC 19.40.

19.70.240 Wetlands – Specific Wetland Category Development Standards.

- A. **Category I Wetlands.** Development activities and uses that result in alteration of Category I wetlands and their associated buffers are prohibited, unless the denial will prevent all reasonable economic use of the property. The development may be permitted through a Critical Area Variance if it is determined to be the minimum impact possible and a Reasonable Use as prescribed in AMC 19.70.045.
- B. **Category II, III and IV Wetlands.** Development activities that result in alteration of Category II, III or IV wetlands may be permitted upon demonstration, through a critical areas report meeting the requirements of this Chapter, that:
 - 1. Mitigation sequencing has been applied per AMC 19.70.135;
 - 2. The proposed alteration will not degrade the quantitative and qualitative functioning of the wetland, or that any degradation can be adequately mitigated to protect or compensate for the wetland functions that are lost;
 - 3. Small, Hydrologically Isolated Category III and IV Wetlands (less than 1,000 sq. ft.). The Decision maker may allow small, hydrologically isolated Category III and IV wetlands to be exempt from the requirement to avoid impacts (AMC 19.70.135(A)(1) Mitigation requirements) and allow alteration of such wetlands if all of the following conditions are met:

- a. The remaining mitigation sequencing actions of AMC 19.70.135(A) (2)-(6) are followed;
 - b. The wetland is less than 1,000 square feet in area;
 - c. The wetland does not have unique characteristics that would be difficult to replace through standard compensatory mitigation practices.
 - d. The wetland is a low quality Category III or IV wetland with a habitat score of less than 5 points in the adopted rating system;
 - e. The wetland does not provide significant suitable breeding habitat for native amphibian species. Suitable breeding habitat may be indicated by adequate stable and seasonal inundation that is persistent from February to at least through April and presence of thin-stemmed emergent vegetation and/or clean water;
 - f. The wetland does not contain habitat identified as essential for local populations of priority species identified by the Washington Department of Fish and Wildlife or species of local importance which are regulated as fish and wildlife habitat conservation areas in Chapter 19.70.300 (FWHCA section);
 - g. The wetland is not associated with shorelines of the state or their associated buffers;
 - h. The wetland is not associated with riparian areas or buffers;
 - i. The wetland is not part of a wetland mosaic; and
 - j. A mitigation plan to replace lost wetland functions and values is developed, approved, and implemented consistent with AMC 19.70.140.
 - k. In order to verify that the wetland meets these exemption conditions, a critical area report for wetlands meeting the requirements in this chapter must be submitted.
4. Small, Hydrologically Isolated Category III and Category IV Wetlands (less than 1,000 sq. ft.). Wetlands less than 1,000 square feet that meet the criteria in subsection (B)(3) of this section (above) and that do not contain federally listed species or their critical habitat are exempt from the buffer provisions contained in this Chapter. In order to verify that the wetland meets this exemption, a critical area report for wetlands meeting the requirements in this chapter must be submitted.

19.70.250 Wetlands – Required buffer areas.

- A. **Buffer Requirements.** Wetland buffers must be established to protect the integrity, functions and values of the wetland. The standard buffer widths in Tables 19.70.250 (A) (B) and (C) have been established in accordance with the best available science. The buffer widths must be determined based on the category of wetland, surrounding land use intensity, and the habitat score as assigned by a qualified wetland professional using the most up to date version of the Washington State Wetland Rating System for Western Washington.
1. **Measurement of Wetland Buffers.** All buffers must be measured horizontally from edge of the wetland boundary as surveyed in the field. The width of the wetland buffer must be determined according to Tables 16.55.340(B), (C) and (D).
 2. **Buffer Standards.** The buffer standards required by this chapter presume the existence of a dense vegetation community in the buffer adequate to protect the wetland functions and values. When a buffer lacks adequate vegetation, the decision maker may increase the standard buffer, require buffer planting or other enhancements, and/or deny a proposal for buffer reduction or buffer averaging.
- B. For the purposes of buffer determination below, Land Use Intensity rating is as follows:

Table 19.70.250 (A)

High Land Use Intensity	Land use that includes the following uses or activities: commercial, industrial, institutional, retail sales, nonresidential use in zones where the primary intent is residential, high density residential zones (R4, R4A, OT), high-intensity recreation (such as golf courses, ball fields,), hobby farms.
Moderate Land Use Intensity	Land use that includes the following uses or activities: medium density residential (R2, R2A, R3, R3A), moderate-intensity open space (parks, trails, and logging roads.
Low Land Use Intensity	Land use that includes the following uses or activities: low density residential (R1), forestry (cutting of trees only), low-intensity open space (such as passive recreation and natural resources preservation), unpaved trails.

- C. There are three sets of buffer standards, based on these parameters:

1. Buffer Widths for wetlands that have a high level of function for wildlife habitat as indicated by a habitat function score of 8 or 9 points or more on the wetland rating form:

Table 19.70.250 (B).

Wetland Category	Buffer Width (feet)		
	High Intensity	Moderate Intensity	Low Intensity
Category I	200	190	150
Category II	200	150	100
Category III	150	110	75
Category IV	50	40	25

2. Buffer Widths for wetlands that have a moderate level of function for wildlife habitat as indicated by a habitat function score of 6 or 7 points or more on the wetland rating form:

Table 19.70.250 (C).

Wetland Category	Buffer Width (feet)		
	High Intensity	Moderate Intensity	Low Intensity
Category I	150	110	75
Category II	150	110	75
Category III	150	100	60
Category IV	50	40	25

3. Buffer Widths for wetlands that have a low level of function for wildlife habitat as indicated by a habitat function score of 3 to 5 points or more on the wetland rating form:

Table 19.70.250 (D).

Wetland Category	Buffer Width (feet)		
	High Intensity	Moderate Intensity	Low Intensity
Category I	100	75	50
Category II	100	75	50
Category III	80	60	50
Category IV	50	40	25

- D. **Increasing buffer widths.** Buffer widths may be increased, on a case-by-case basis, as determined by the Decision maker. This determination must be supported by appropriate documentation showing that it is necessary to protect wetland functions and values. Documentation must include, but is not limited to, any of the following:
1. The wetland is used by a plant or animal species listed by the Federal government or the State as endangered, threatened, candidate, sensitive, monitored, or documented priority species or habitats, or the wetland is essential or outstanding habitat for those species or has unusual nesting or resting sites such as heron rookeries or raptor nesting trees; or
 2. The adjacent land has slopes greater than 15 percent and is susceptible to severe erosion, and erosion-control measures will not effectively prevent adverse wetland impacts; or
 3. The adjacent land has minimal vegetative cover on slopes greater than 30%. In lieu of increasing the buffer width where exiting buffer vegetation is inadequate to protect the wetland functions and values, development and implementation of a wetland buffer restoration/enhancement plan in accordance with AMC 19.70.270 may be substituted.
 - a. **Averaging buffer widths.** The Decision maker may allow averaging of wetland buffer widths on a case-by-case basis when the critical areas report demonstrates that the following criteria are met:
 - i. There is not a feasible alternative to the site design that could be accomplished without buffer averaging;
 - ii. The buffer averaging does not reduce the functions or values of the wetland, either through preservation of total buffer area or enhancement of buffer areas;
 - iii. The total area contained in the buffer area after averaging is no less than that which would be contained within the standard buffer.
 - iv. The wetland contains variation in sensitivity due to existing physical characteristics or the character of the buffer varies in slope, soils, or vegetation, and the wetland would benefit from a wider buffer in places and would not be adversely impacted by a narrow buffer in other places;
 - v. The buffer width at its narrowest point is not reduced to less than 75 percent of the standard width, for Category I and II. No less than 50 percent or 35 feet for Category III, and 15 feet for Category IV, whichever is greater.
- E. **Measurement of Wetland Buffers.** All buffers must be measured perpendicular from the wetland boundary as surveyed in the field. The buffer for a wetland created, restored, or enhanced as a compensation for approved wetland alterations must be the same as the buffer required for the category of the created, restored, or enhanced wetland.

- F. **Buffers on mitigation sites.** Buffer widths must be applied to mitigation sites consistent with the wetland ratings and buffer requirements of this chapter for subsequent development proposals based on expected category of the wetland once the mitigation actions are taken. Only fully vegetated buffers with predominantly native plants will be included in the new buffer area. Lawns, walkways, driveways, and other mowed or paved areas will not count towards the required buffer calculations.
- G. **Buffer Maintenance.** Except as otherwise specified or allowed in accordance with this Chapter, wetland buffers must be retained in an undisturbed or enhanced condition. In the case of compensatory mitigation sites, removal of invasive nonnative weeds is required for the duration of the mitigation bond.
- H. **Buffer impacts.** When buffer impacts occur, compensatory mitigation must be provided at a minimum ratio of 1:1 for the area impacted. The mitigation must occur on the same site when feasible or within the same wetland system preferably. The mitigation must ensure that the wetland functions and values are not diminished due to the buffer impacts.
- I. **Stormwater management facilities.** Stormwater management facilities may be allowed in Category III and IV wetland buffers if they meet all of the criteria identified below:
1. The wetland is classified as a Category III or a Category IV wetland with a habitat score of 3-5 points or less, and
 2. There will be “no net loss” of functions and values of the wetlands, and
 3. The wetland does not contain a breeding population of any native amphibian species, and
 4. The hydrologic functions of the wetland can be improved as outlined in questions 3, 4, 5 of Chart 4 and questions 2, 3, 4 of Chart 5 in the “Guide for Selecting Mitigation Sites Using a Watershed Approach,” (available here: <http://www.ecy.wa.gov/biblio/0906032.html>); or the wetland is part of a priority restoration plan that achieves restoration goals identified in a Shoreline Master Program or other local or regional watershed plan;
 5. The wetland lies in the natural routing of the runoff, and the discharge follows the natural routing, and
 6. All regulations regarding stormwater and wetland management are followed, including but not limited to local and state wetland and stormwater codes, manuals, and permits, and
 7. Modifications will require permits. Existing functions and values that are lost would have to be compensated/replaced through an approved mitigation plan.
- J. **Setbacks from buffers.** Buildings, structures, paving, and other hard surfacing must be set back a minimum distance of 10 feet from the edge of the wetland buffer, or edge of the wetland if no buffer is required, unless otherwise determined by the Decision maker that a smaller distance would meet the intent of this subsection. This setback is to avoid conflicts with tree branches and/or critical root zones of trees that are in the buffer or will be planted in the buffer. The

following may be allowed in the building setback from the buffer if they do not cause damage to the critical root zone of trees in the buffer:

1. Landscaping;
2. Uncovered decks, roof eaves and overhangs, unroofed stairways and steps;
3. Pervious ground surfaces, such as driveways, patios, and parking may be allowed; provided that it is engineered as a pervious system as defined in AMC _____. Such improvements may be subject to the requirements in AMC _____, Stormwater Management.

K. Functionally Separated and Isolated Buffers. Consistent with the definition of “buffer” AMC 19.12.020, areas that are functionally isolated and physically separated from a wetland due to existing, legally established roadways, railroads or other legally established structures or paved areas eight feet or more in width that occur between the area in question and the wetland must be considered physically isolated and functionally separated buffer. Once determined by the Decision maker, based on a submitted critical area report, to be a physically separated and functionally isolated wetland buffer, development proposals are allowed in these areas.

19.70.260 Wetlands - Critical areas report additional requirements

A. Additional Report Contents for Wetlands. In addition to the minimum report contents required per AMC 19.70.125 wetland reports must also include;

1. For each wetland identified on site and off site within 300 feet of the project site provide: the wetland rating, including a description of and score for each function, per wetland ratings (AMC 19.70.210) required buffers (AMC 19.70.250); hydrogeomorphic classification; wetland acreage based on a professional survey from the field delineation (acreages for on-site portion and entire wetland area including off-site portions); Cowardin classification of vegetation communities; 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 inlet/outlets (if they can be legally accessed), estimated water depths within the wetland, and estimated hydroperiod patterns based on visual cues (e.g., algal mats, drift lines, flood debris, etc.). Provide acreage estimates, classifications, and ratings based on entire wetland complexes, not only the portion present on the proposed project site;
2. A discussion of the potential impacts to the wetland(s) associated with anticipated hydroperiod alterations from the project;
3. A description of the proposed actions, including an estimation of acreages of impacts to wetlands and buffers based on the field delineation and survey and an analysis of site development alternatives, including a no-development alternative;

4. An assessment of the probable cumulative impacts to the wetlands and buffers resulting from the proposed development;
5. A description of reasonable efforts made to apply mitigation sequencing pursuant to AMC 19.70.130 to avoid, minimize, and mitigate impacts to critical areas and a discussion of measures, including avoidance, minimization, and compensation, proposed to preserve existing wetlands and restore any wetlands that were degraded prior to the current proposed land-use activity;
6. A conservation strategy for habitat and native vegetation that addresses methods to protect and enhance on-site habitat and wetland functions; and
7. An evaluation of the functions of the wetland and adjacent buffer. Include reference for the method used and data sheets.

B. Additional Information. When appropriate due to the proposed impacts or the project area conditions, the Decision maker may also require the critical area report to include:

1. A request for consultation with the Washington State Department of Fish and Wildlife (DFW), Washington State Department of Ecology (Ecology), local Native American Indian tribes, and/or other appropriate agency;
2. Copies of the Joint Aquatic Resource Permit Application (JARPA) and related approvals, such as a Hydraulic Project Approval (HPA) from the Washington Department of Fish and Wildlife (WDFW), when applicable to the project; and
3. Detailed surface and subsurface hydrologic features both on and adjacent to the site.

19.70.270 Wetlands – Compensatory mitigation performance standards and requirements.

A. Compensatory Mitigation Plan. When a project involves wetland and/or buffer impacts, a compensatory mitigation plan must be included as part of the required critical area report. Compensatory wetland mitigation plans must meet the minimum requirements AMC 19.70.140 and demonstrate compliance with ACM 19.70.135. Full guidance can be found in Wetland Mitigation in Washington State – Part 2: Developing Mitigation Plans (Version 1) (Ecology Publication No. 06-06-011b, March 2006, or as revised). The mitigation plan must meet the following additional standards:

1. Description of the existing wetland and buffer areas proposed to be impacted. Include acreage (or square footage), water regime, vegetation, soils, landscape position, surrounding land uses, and functions. Also describe impacts in terms of acreage by Cowardin classification, hydrogeomorphic classification, and wetland rating, based on wetland ratings (AMC 19.70.210(B));
2. Description of the compensatory mitigation site, including location and rationale for selection. Include an assessment of existing conditions: acreage (or square footage) of wetlands and uplands, water regime, sources of water, vegetation, soils,

landscape position, surrounding land uses, and functions. Estimate future conditions in this location if the compensation actions are not undertaken (i.e., how would this site progress through natural succession);

3. A description of the proposed actions for compensation of wetland and upland areas affected by the project. Include overall goals of the proposed mitigation, including a description of the targeted functions, hydrogeomorphic classification, categories of wetlands, and mitigation ratios applied (if ratio approach used);
4. A description of the proposed mitigation construction activities, construction/installation notes, and timing of activities;
5. A discussion of ongoing management practices that will protect wetlands after the project site has been developed, including proposed monitoring and maintenance programs (for remaining wetlands and compensatory mitigation wetlands);
6. Proof of establishment of notice on title for the wetlands and buffers on the project site, including the compensatory mitigation areas; and
7. The scaled plan sheets for the compensatory mitigation must contain, at a minimum
 - a. An accurate depiction of the existing wetland and buffers, proposed areas of wetland and/or buffer impacts, location of proposed wetland and/or buffer compensation actions;
 - b. Existing topography, ground-processed, at two-foot contour intervals in the zone of the proposed compensation actions if any grading activity is proposed to create the compensation area(s). Also existing cross-sections of on-site wetland areas that are proposed to be impacted and cross-section(s) (estimated one-foot intervals) for the proposed areas of wetland or buffer compensation;
 - c. Surface and subsurface hydrologic conditions, including an analysis of existing and proposed hydrologic regimes for enhanced, created, or restored compensatory mitigation areas. Also, illustrations of how data for existing hydrologic conditions were used to determine the estimates of future hydrologic conditions;
 - d. Conditions expected from the proposed actions on site, including future hydrogeomorphic types, vegetation community types by dominant species (wetland and upland), and future water regimes;
 - e. 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;

- f. A plant schedule for the compensation area, including all species by proposed community type and water regime, size and type of plant material to be installed, spacing of plants, typical clustering patterns, typical plant installation details and notes, total number of each species by community type, timing of installation; and
- g. Performance standards (measurable standards reflective of years post-installation) for upland and wetland communities, monitoring plan, contingency plan, and maintenance schedule, and actions. Standards for success must be established based on the performance standards identified and the functions and values being mitigated based on the guidance in Wetland Mitigation in Washington State – Part 2: Developing Mitigation Plans (Version 1) (Ecology Publication No. 06-06-011b, March 2006, or as revised).

B. Requirements for Compensatory Mitigation.

- 1. Compensatory mitigation for alterations to wetlands may be used only for impacts that cannot be avoided or minimized, except as otherwise exempted in this chapter AMC 19.70.240, and must achieve equivalent or greater biologic functions. Compensatory mitigation plans must be consistent with Wetland Mitigation in Washington State – Part 2: Developing Mitigation Plans (Version 1), (Ecology Publication No. 06-06-011b, March 2006, or as revised).
- 2. Mitigation ratios must be consistent with subsection I of this section.
- 3. Mitigation requirements may also be determined using the credit/debit tool described in “Calculating Credits and Debits for Compensatory Mitigation in Wetlands of Western Washington: Final Report March 2012” (Ecology Publication No. 10-06-011, March 2012, or as revised) consistent with subsection H of this section.

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

- 1. The lost wetland provides minimal functions and values, and the proposed compensatory mitigation action(s) will provide equal or greater functions and values or will provide functions and values shown to be limiting within a watershed through a formal Washington State watershed assessment plan or protocol; or
- 2. Out-of-kind replacement of wetland type or functions and values will best meet watershed goals formally identified by the City, such as replacement of historically diminished wetland types.

D. Preference of Mitigation Actions. Methods to achieve compensation for wetland functions and values must be approached in the following order of preference:

1. **Restoration.** The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural or historic functions to a former or degraded wetland. Restoration of wetlands includes re-establishment and rehabilitation.
 - a. **Re-establishment.** Returning natural or historic functions to a former wetland. Re-establishment results in a gain in wetland acres (and functions). Activities could include removing fill material, plugging ditches, or breaking drain tiles.
 - b. **Rehabilitation.** Repairing natural or historic functions of a degraded wetland. Rehabilitation results in a gain in wetland function but does not result in a gain in wetland acres. Activities could involve breaching a dike to reconnect wetlands to a floodplain or return tidal influence to a wetland.
2. **Creation.** Creation (establishment) of wetlands on disturbed upland sites, such as those with vegetative cover consisting primarily of nonnative species. This should be attempted only when there is an adequate source of water and it can be shown that the surface and subsurface hydrologic regime is conducive to the wetland community that is anticipated in the design.
3. **Enhancement.** Enhancement of significantly degraded wetlands in combination with restoration or creation. Enhancement alone will result in a loss of wetland acreage and is less effective at replacing the functions and values lost. Enhancement should be part of a mitigation package that includes replacing the impacted area and meeting appropriate ratio requirements.
4. **Preservation.** Preservation of high-quality, at-risk wetlands as compensation is generally acceptable when done in combination with restoration, creation, or enhancement; provided, that a minimum of 1:1 acreage replacement is provided by reestablishment or creation. Preservation of high-quality, at-risk wetlands and habitat may be considered as the sole means of compensation for wetland impacts when the following criteria are met:
 - a. Proposed wetland impacts will not have a significant adverse impact on habitat for listed fish, or other ESA-listed species;
 - b. There is no net loss of habitat functions within the watershed or basin;
 - c. Mitigation ratios for preservation as the sole means of mitigation must generally start at 20:1. Specific ratios should depend upon the significance of the preservation project and the quality of the wetland resources lost;
 - d. The impact area is small (generally less than one-half acre) and/or impacts are occurring to a low-functioning system (Category III or IV wetland); and

- e. All preservation sites must include buffer areas adequate to protect the habitat and its functions from encroachment and degradation.

5. **Wetland Bank or Advanced Wetland Mitigation.** For future use since no current banks have a service area in Anacortes.

E. **Type and Location of Compensatory Mitigation.** Unless it is demonstrated that a higher level of ecological functioning would result from an alternative mitigation approach, compensatory mitigation for ecological functions should be either in kind and on site, or in kind and within the same stream reach, sub-basin, or drift cell (if estuarine wetlands are impacted). Compensatory mitigation actions must be conducted within the same sub-basin or on the site of the alteration, except when the following apply:

1. The conditions in AMC 19.70.270(B) are met.
2. There are no reasonable opportunities on site or within the sub-basin (e.g., on-site options would require elimination of high-functioning upland habitat), or opportunities on site or within the sub-basin do not have a high likelihood of success based on a determination of the capacity of the site to compensate for the impacts. Considerations should include:
 - a. Anticipated replacement ratios for wetland mitigation;
 - b. Buffer conditions and proposed widths;
 - c. Available water to maintain anticipated hydrogeomorphic classes of wetlands when restored; and
 - d. Proposed flood storage capacity, and potential to mitigate riparian fish and wildlife impacts (such as connectivity);
 - e. Off-site mitigation has a greater likelihood of providing equal or improved wetland functions than the impacted wetland;
 - f. Off-site locations must be in the same sub-basin, unless watershed goals for water quality, flood storage or conveyance, habitat, or other wetland functions have been established by the City and strongly justify location of mitigation at another site; and
 - g. The design for the compensatory mitigation project needs to be appropriate for its location (i.e., position in the landscape). Therefore, compensatory mitigation should not result in the creation, restoration, or enhancement of an atypical wetland. An atypical wetland refers to a compensation wetland (e.g., created or enhanced) that does not match the type of existing wetland that would be found in the geomorphic setting of the site (i.e., the water source(s) and hydroperiod proposed for the mitigation site are not typical for the geomorphic setting). Likewise, it should not provide exaggerated morphology or require a berm or other engineered structures to hold back water. For example, excavating a permanently inundated pond in an existing, seasonally saturated or inundated wetland is one example of an enhancement project that could result in an

atypical wetland. Another example would be excavating depressions in an existing wetland on a slope, which would require the construction of berms to hold the water.

- F. **Wetland Mitigation Banks.** Credits from a wetland mitigation bank certified under [WAC 173-700](#) may be used to compensate for impacts located within the service area specified in the mitigation bank instrument, if:
1. The proposal would provide appropriate compensation for the proposed impacts; and
 2. The impact site is located in the service area of the bank.
 3. The proposed use of credits is consistent with the terms and conditions of the certified mitigation bank instrument.
 4. Replacement ratios using bank credits are consistent with replacement ratios specified in the certified mitigation bank instrument.
- G. **In-Lieu Fee Mitigation.** Credits from an approved in-lieu fee (ILF) program may be used when all of the following apply:
1. The Decision maker determines that it would provide environmentally appropriate compensation for the proposed impacts.
 2. The proposed use of credits is consistent with the terms and conditions of the approved ILF program instrument.
 3. Projects using ILF credits must 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.
 4. The impacts are located within the service area specified in the approved ILF instrument.
- H. **Permittee-responsible mitigation.** This type of mitigation is defined in 33 CFR 332 as "an aquatic resource restoration, establishment, enhancement and/or preservation activity undertaken by the permittee (or an authorized agent or contractor) to provide compensatory mitigation for which the permittee retains full responsibility." The permittee performs the mitigation either before the project impact occurs and before any project impact permit is issued (Advance Permittee-Responsible Mitigation) or at the same time as the project impact is occurring after the project impact permit is issued (Concurrent Permittee-Responsible Mitigation). The permittee is ultimately responsible for implementation and success of the mitigation. For advance mitigation, the permittee generates mitigation credits that may be used to compensate for future wetland or buffer impacts. Only the permittee may use the advance mitigation credits. Permittee-responsible mitigation may occur at the site of the permitted impacts or at an off-site location within the same watershed. Permittee-responsible mitigation must be used only if the applicant's qualified wetland professional demonstrates to the approval authority's satisfaction that the proposed approach is ecologically preferable to use of a bank or ILF program, consistent with the criteria in this section.

- I. **Alternative Mitigation Plan.** The Decision maker may approve an alternative wetland mitigation plan that is based on best available science. Proposed alternative mitigation plans must provide an equivalent or better level of protection of wetland functions and values than would be provided by the strict application of this chapter.
1. The following will be considered in the approval of an alternative mitigation plan:
- a. The plan uses a watershed approach consistent with [*Selecting Wetland Mitigation Sites Using a Watershed Approach \(Western Washington\)*](#) (Ecology Publication #09-06-032, Olympia, WA, December 2009).
 - b. Creation or enhancement of a larger system of natural areas and open space is preferable to the preservation of many individual small habitat areas.
 - c. Mitigation according to Section D is not feasible due to site constraints including but not limited to parcel size, stream type, wetland category, or geologically hazardous areas.
 - d. There is a clear potential for success of the proposed compensation at the identified site.
 - e. The Plan must contain clear and measurable standard for achieving compliance with the specific provisions of the plan, consistent with AMC 19.70.135.
 - f. The plan must be reviewed and approved as part of the overall approval of the proposed use.
 - g. A wetland of a different type may be justified based on regional needs or functions and values; the replacement ratios may not be reduced or eliminated unless the reduction results in a preferred environmental alternative.
 - h. Mitigation guarantees must meet the minimum requirements as outlined in AMC 19.70.160.
 - i. Qualified professionals in each of the critical areas addressed must prepare the plan.
 - j. The City 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.
- J. **Wetland Mitigation Ratios.** The ratios below are based on the assumption that the rehabilitation or enhancement actions implemented represent the average degree of improvement possible for the site. Proposals to implement more effective rehabilitation or enhancement actions may result in a lower ratio, while less effective actions may result in a higher ratio. The distinction between rehabilitation and enhancement is not clear-cut. Instead, rehabilitation and enhancement actions span a continuum. Proposals that fall within the gray area between rehabilitation and enhancement will result in a ratio that lies between the ratios for rehabilitation and the ratios for enhancement.

Table 19.70.270 – Wetland Mitigation Ratios

Category and Type of Wetland	Creation or Reestablishment	Rehabilitation Only	Re-Est or Creation (R/C) and Re-hab (RH)	Re-Est or Creation (R/C) and Enhancement (E)	Enhancement Only
Category I Mature Forested	6:1	12:1	1:1 R/C & 10:1 RH	1:1 R/C & 20:1 E	24:1
Category I – based on score for functions	4:1	8:1	1:1 R/C & 6:1 RH	1:1 R/C & 12:1 E	16:1
Category I Natural Heritage Site	Not allowed	6:1 Rehabilitation of a Natural Heritage Site	Not allowed	Not allowed	Case-by-case
Category I Bog	Not allowed	6:1 Rehabilitation of a bog	Not allowed	Not allowed	Case-by-case
Category I Estuarine	Case-by-case	6:1 Rehabilitation of an estuarine wetland	Case-by-case	Case-by-case	Case-by-case
Category II	3:1	6:1	1:1 R/C & 4:1 RH	1:1 R/C & 8:1 E	12:1
Category III	2:1	4:1	1:1 R/C & 2:1 RH	1:1 R/C & 4:1 E	8:1
Category IV	1.5:1	3:1	1:1 R/C & 1:1 RH	1:1 R/C & 2:1 E	6:1

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

L. **Mitigation Performance Standards.** Wetland mitigation plans must be consistent with AMC 19.70.130 Mitigation requirements and 19.70.135 Mitigation plan requirements and Wetland Mitigation in Washington State, Part 1: Agency Policies and Guidance (Version 1, Ecology Publication #06-06-011a), or as amended, and best available science.

M. Minimum Standards. The design standards in this section must be incorporated into mitigation plans submitted to the City for impacts to wetlands and/or wetland buffers. The following standards apply to any mitigation proposed within Category I, II, III and IV wetlands and their buffers. Modifications to these design standards consistent with the guidance in Wetland Mitigation in Washington State – Part 2: Developing Mitigation Plans (Version 1) (Ecology Publication No. 06-06-011b, March 2006, or as revised) may be considered for approval by the Decision maker as alternatives to the following standards:

1. Plants native to the region (not introduced, non-native or exotic species) must be used.
2. Plant species selection must be consistent with the existing or projected hydrologic regime, including base water levels and stormwater event fluctuations.
3. Plant species selection must be consistent with the site environmental conditions such as slope, aspect, soils and exposure to sun, wind and rain.
4. Plants should be commercially available or available from local sources.
5. Native plant species high in food and cover value for fish and wildlife should be prioritized, as appropriate for the site.
6. Plant selection must be approved by a qualified professional.
7. The following standards apply to wetland design and construction:
 - a. For wetland creation sites, preliminary investigations of existing hydrology at the site must be completed to confirm that the site has adequate source hydrology (e.g., high groundwater, precipitation or riverine flooding) to support wetland conditions.
 - b. Water depth in areas of seasonal or occasional inundation must not exceed three feet (0.914 meters), unless the proposed mitigation is compensating for impacts to unvegetated/open water areas.
 - c. If creating or rehabilitating a slope wetland, the grade or slope within the wetland must not exceed 6 percent, unless otherwise approved by the Decision maker.
 - d. Slopes within the wetland contributing basin and the buffer zone must not be steeper than 3:1 (horizontal to vertical).
 - e. The wetland (excluding the buffer area) should not contain more than 20 percent unvegetated/open water areas as measured at the seasonal high water mark, unless the mitigation is compensating for vegetated.

- f. Site soils must be free of contamination and/or hazardous materials, and must have adequate organic content and porosity to support the proposed native plant community.
 - g. Planting densities and placement of plants should be determined by a qualified professional and shown on the design plans.
- 8. The planting plan must be approved by the City.
- 9. Stockpiling soil and construction materials should be confined to upland areas and contract specifications should limit stockpiling of earthen materials to durations in accordance with City clearing and grading standards, unless otherwise approved by the City.
- 10. Planting instructions must be submitted which describe placement, diversity, and spacing of seeds, tubers, bulbs, rhizomes, sprigs, plugs, and transplanted stock.
- 11. Controlled release fertilizer (if required) must be used in upland areas only (buffers and other non-wetland areas) and must be installed into the planting hole only at the time of planting. No fertilizer must be applied to the ground surface.
- 12. An irrigation system must be installed or watering afforded by trucks or hoses to provide water for installed plants and seeded areas to supplement rainfall to ensure that plants receive approximately 0.5 inches of water per week during the dry season of the first two years after plant installation.
- 13. All construction specifications and methods must be approved by a qualified professional and the City.
- 14. Construction management provided must be provided by a qualified professional. Ongoing work on site must be inspected by the City.

FISH AND WILDLIFE HABITAT CONSERVATION AREAS

19.70.300. Fish and wildlife habitat – Description and Purpose

- A. Fish and wildlife habitat conservation areas are lands managed for maintaining populations of species in suitable habitats within their natural geographic distribution so that the habitat available is sufficient to support viable populations over the long term and isolated subpopulations are not created. In addition to their intrinsic value, certain species of fish and wildlife represent important historic, cultural, recreational and economic resources.
- B. It is the purpose of this Chapter to protect fish and wildlife populations and their associated habitats and provide special consideration to conservation or protection measures necessary to preserve or enhance anadromous species.

19.70.310 Fish and wildlife habitat – Designation.

A. Fish and Wildlife Habitat Conservation Areas (FWHCAs) are designated as follows:

1. Areas with which endangered, threatened, and sensitive species listed by the federal government or the State of Washington have a primary association;
2. Commercial and recreational shellfish areas, including public and private tidelands suitable for shellfish harvest and shellfish protection districts established pursuant to [RCW 90.72](#);
3. Kelp and eelgrass beds and herring and smelt spawning areas;
4. Naturally occurring ponds under 20 acres with submerged aquatic beds that provide fish or wildlife habitat as further defined in [WAC 365-190-130\(4\)\(e\)](#);
5. Waters of the State, including streams as classified in WAC [222-16-030](#);
6. Lakes, ponds, streams, and rivers planted with game fish by a governmental or tribal entity;
7. Areas with which anadromous fish species have a primary association;
8. State natural area preserves, natural resource conservation areas, and state wildlife areas as established by WA DNR;
9. Areas of rare plant species and high quality ecosystems as identified by the Washington State Department of Natural Resources through the Natural Heritage Program in Chapter [79.70](#) RCW.
10. State priority habitats and areas associated with State priority species defined and listed by the State Department of Fish and Wildlife in the Priority Habitats and Species List Updated January 2019. Priority habitats and species known to be identified and mapped by WDFW (<http://apps.wdfw.wa.gov/phsontheweb/>) in Anacortes include, but may not be limited to, the following:
 - a. Biodiversity areas;
 - b. Bald eagle habitat protected pursuant to the Federal Bald and Golden Eagle Protection Act;
 - c. Chinook/fall chinook salmon;
 - d. Coho salmon;
 - e. Great blue heron nest sites and breeding areas;
 - f. Osprey nest sites;
 - g. Peregrine falcon nest sites and breeding areas;
 - h. Purple martin breeding areas;

- i. Resident coastal cutthroat trout;
- j. Winter steelhead trout;
- k. Water fowl concentrations.

11. The following Habitats and Species of Local Importance have been designated by the City:

- a. The Anacortes Community Forestlands.
- b. The March Point Heronry.
- c. The one and one-half acre "Park Reserve" at Cap Sante bounded by 3rd Street, East Park Drive, and Curtis Drive.

B. In addition to the FWHCAs identified in Subsection (A)(11) of this section, additional habitats and species of local importance may be designated by the City using the following process:

1. Designation process. The city may consider nominations for habitat areas and species to be designated as locally important on an annual basis as part of the annual comprehensive plan and development regulation update process, based on the following criteria:
 - a. Local populations of native species that are in danger of extirpation based on existing trends, likely to become endangered, or are vulnerable or declining;
 - b. The habitat represents either a high quality native habitat, or the habitat has a high potential to recover to a suitable condition and which is of limited availability, is highly vulnerable to alteration, or provides landscape connectivity which contributes to the integrity of the surrounding landscape;
 - c. The species or habitat has recreation, commercial, game, tribal, or other intrinsic value;
 - d. Long-term persistence of a species is dependent on protection, maintenance, and/or restoration of the nominated habitat;
 - e. Protection by other county, state, or federal policies, laws, regulations, or non-regulatory tools is not adequate to prevent degradation of the species or habitat; and
 - f. Without protection, there is a likelihood that the species or habitat will be diminished.
2. The nomination must indicate whether specific habitat features are to be protected (for example, nest sites, breeding areas, and nurseries) or whether the habitat or ecosystem is being nominated in its entirety.

3. The nomination may include management strategies for the species or habitats, which must be supported by best available science. Where restoration of habitat is proposed, a specific plan for restoration must be provided.
- C. All areas within the city meeting one or more of these criteria, regardless of any formal identification, are hereby designated critical areas and are subject to the provisions of this chapter.

19.70.320 Fish and wildlife habitat – Mapping.

- A. **Mapping.** The approximate location and extent of some FWHCA's are shown in the data layers maintained in the City of Anacortes geographic information system (GIS). In addition, the following maps and inventories are hereby adopted by reference, as amended:
1. [Washington Department of Fish and Wildlife Priority Habitat and Species maps](#);
 2. Washington Department of Natural Resources, [Official Water Type Reference maps](#);
 3. Washington Department of Natural Resources [Puget Sound Intertidal Habitat Inventory maps](#);
 4. Washington Department of Natural Resources [Shore Zone inventory](#);
 5. Washington Department of Natural Resources [Natural Heritage Program mapping data](#);
 6. Washington Department of Health Annual [Inventory of Shellfish Harvest Areas](#);
 7. Anadromous and resident fish distribution maps contained in the habitat limiting factors reports published by the Washington Conservation Commission and others;
 8. Washington Department of Natural Resources State Natural Area Preserves and Natural Resource Conservation Area maps; and
 9. NOAA Northwest Region Critical Habitat Mapper or equivalent source:
<http://www.nmfs.noaa.gov/pr/species/criticalhabitat.htm>
- B. **Reference Only.** The maps and resources cited above are to be used as a guide for the City of Anacortes Planning, Community & Economic Development Department, project applicants, and/or property owners and may be continuously updated as new critical areas are identified. They are a reference and do not provide a final critical area designation.

19.70.330 Fish and wildlife habitat – General Development Standards for all FWHCAs.

- A. All new development activities and uses are prohibited from habitat conservation areas and their buffers except in accordance with this Chapter. FWHCA's or their buffers may be altered only if the proposed alteration of the habitat or the mitigation proposed does not degrade the functions and values of the habitat.
- B. **Exemptions.** Exemptions to this chapter are listed in the provisions established in AMC 19.70.035 Exemption Activities.

- C. **Approvals and the Best Available Science.** Any approval of alterations or impacts to a FWHCA area must be supported by the best available science as described in the required Critical Area Report.
- D. **Approvals of Activities may be conditioned.** The decision maker may condition approvals of activities allowed within or adjacent to a fish and wildlife habitat conservation area as necessary to minimize or mitigate any potential adverse impacts. Conditions will be based on the best available science and may include, but are not limited to, the following:
1. Establishment of buffers;
 2. Preservation of important vegetation and/or habitat features such as snags and downed wood specific to the priority wildlife species in the fish and wildlife habitat conservation area;
 3. Limitation of access to the habitat area, including fencing to deter unauthorized access;
 4. Seasonal restriction of construction activities;
 5. Establishment of a duration and timetable for periodic review of mitigation activities; and
 6. Requirement of a performance bond, when necessary, to ensure completion and success of proposed mitigation.
- E. **Seasonal Restrictions.** When a species is more susceptible to adverse impacts during specific periods of the year, seasonal restrictions may apply. Larger buffers may be required and activities may be further restricted during the specified season.
- F. **Subdivisions.** The subdivision and short subdivision of land in FWHCA's and associated buffers is subject to the following:
1. Land that is located wholly within a FWHCA or its buffer may not be subdivided;
 2. Land that is located partially within a FWHCA may be subdivided only if an accessible and contiguous portion of each new lot that meets the minimum lot size requirements for the zone is located outside of the FWHCA and its buffer.
 3. Access roads and utilities serving a proposed subdivision may be permitted within the FWHCA and associated buffers only if the applicant's qualified professional(s) demonstrate, and the Decision maker determines, that no other feasible alternative exists, all unavoidable impacts are fully mitigated, and the use is consistent with this chapter.
- G. **Non-indigenous species.** No plant, wildlife, or fish species not indigenous to Fidalgo Island may be introduced to a FWHCA unless authorized by a state or federal permit approval.

19.70.340 Fish and wildlife habitat – Specific Standards for Streams

- A. **Typing.** Stream types must be classified according to WAC 222-16-030. Stream classifications must include the following:
1. Type F streams are those that provide fish habitat;
 2. Type Np streams are perennial waters that do not contain fish habitat; and
 3. Type Ns streams are seasonal waters that do not contain fish habitat, but are physically connected by an above-ground channel system to Type F, or Np waters.
 4. In the case that available information on stream typing is unclear, stream typing will be performed by a qualified professional, provided by the applicant, using a site visit, mapping, and all available information.
- B. **Required Buffer Areas.** Protective riparian buffers must be required to preserve stream/riparian functions and values. The purpose of riparian buffers is to protect riparian functions that influence in-stream and near-stream habitat quality
1. **Measurement of Stream Buffers.** Stream buffers are measured from the ordinary high water mark (OHWM), or the top of the bank if the OHWM cannot be determined. Buffers must be measured with rounded ends where streams enter or exit piped segments. Piped stream setbacks should be measured from the centerline of the pipe.
 2. **Standard Stream Buffer Widths.** Buffer widths must reflect the sensitivity of the stream type, the risks associated with development and, in those circumstances permitted by these regulations, the type and intensity of human activity and site design proposed to be conducted on or near the stream area. The following standard buffers are established for streams:

Table 19.70.340-1 Stream Buffers

DNR Water Type ()	Standard Buffer Width
Type F Streams that are known to be used by fish, or meet the physical criteria to be potentially used by fish.	50 feet
Type Np Streams that have year round flow and do not meet the physical criteria of a Type F. This also includes streams that have been proven not to contain fish using methods described in Forest Practices Board Manual Section 13.	50 feet
Type Ns	50 feet

Streams that do not have surface flow during at least some portion of the year, and do not meet the physical criteria of a Type F stream.	
Piped Streams and Roadside Ditched Segments Those segments of streams, regardless of their type, that are fully enclosed in an underground pipe or culvert, or conveyed through a public roadside ditch as part of the City stormwater infrastructure.	10 feet

3. **Increased Stream Buffer Widths.** The stream buffer widths may be increased by the Decision maker as follows:

- a. When the qualified professional determines that the minimum width is insufficient to prevent habitat degradation and to protect the structure and functions of the habitat area as a result of a habitat assessment required pursuant to AMC 19.70.360;
- b. When the frequently flooded area exceeds the minimum stream buffer width, the stream buffer must extend to the outer edge of the frequently flooded area;
- c. When a channel migration zone is present, the stream buffer must extend to the outer edge of the channel migration zone;
- d. When the habitat area is in an area of high blowdown potential, the stream buffer width must be expanded an additional 50 feet on the windward side;
- e. When the habitat area is within an erosion or landslide hazard area, or buffer, the stream buffer width must be the recommended distance, or the erosion or landslide hazard area or buffer, whichever is greater.

C. **Buffer Reduction Standards.** The Decision Maker may allow the reduction of buffer widths on a case-by-case basis when the critical areas report demonstrates the following criteria are met:

1. There is no feasible alternative to the site design that could be accomplished without buffer reduction;
2. The total buffer width is not reduced to less than 35 feet in stretches of natural stream channel with intact native vegetation within the buffer, and the buffer reduction does not reduce the functions or values of the stream or buffer;
3. The total buffer width is not reduced to less than 25 feet in stretches of modified stream channel with little to no intact native vegetation within the buffer, and the buffer reduction

plan must include an enhancement plan to increase the functions or values of the stream or buffer.

- D. **Building setbacks from stream buffers.** Buildings, structures, paving, and other hard surfacing must be setback a minimum distance of 10 feet from the edge of the stream buffer unless determined by the Decision maker that a smaller distance would meet the intent of this subsection. This setback is to avoid conflicts with tree branches and/or critical root zones of trees that are in the buffer or will be planted in the buffer. The following may be allowed in the building setback from the buffer if they do not cause damage to the critical root zone of trees in the buffer:
1. Landscaping;
 2. Uncovered decks, roof eaves and overhangs, unroofed stairways and steps;
 3. Pervious ground surfaces, such as driveways, patios, and parking may be allowed; provided that they are engineered as a pervious system as defined in AMC _____. Such improvements may be subject to the requirements in AMC _____, Stormwater Management.
- E. **Functionally Separated and Isolated Stream Buffers.** Consistent with the definition of “buffers” in this chapter, areas that are functionally isolated and physically separated from a stream due to existing, legally established public roadways, railroads or other legally established structures or paved areas eight feet or more in width that occur between the area in question and the stream must be considered physically isolated and functionally separated stream buffers. Once determined by the Decision Maker, based on a submitted critical area report, to be a physically separated and functionally isolated stream buffer, development proposals are allowed in these areas.
- F. **Additional Allowed Activities in streams.** Activities, uses and alterations of streams are prohibited unless otherwise listed as exempt or allowed according to the provisions of 19.70.035, 19.70.040, and 19.70.045. No alteration to a stream buffer may be permitted unless consistent with the provisions of this section and the specific standards for development outlined below.
1. **Type F and Type Np Streams Relocation.** Relocation of Type F or Np streams may be permitted only when the proposed relocation is **part of an approved mitigation or rehabilitation/restoration plan**, and will result in equal or better habitat and water quality, and will not diminish the flow capacity of the stream. The applicant must demonstrate proper mitigation sequencing.
 2. **Type Ns Streams Relocation.** Relocation of Type Ns streams may be permitted only when the proposed relocation will result in equal or better habitat and water quality, and will not diminish the flow capacity of the stream. The applicant must demonstrate proper mitigation sequencing.

3. **Stream Crossing.** Crossing of streams may be permitted, and are required to be designed to allow fish passage based on state and federal fish passage criteria.
- G. **Piped Watercourses and Roadside Ditches.** It is recognized that within the urban environment many historical streams have been substantially modified to accommodate development. Many of the regulated and mapped streams within the City of Anacortes pass through natural reaches, modified reaches, piped reaches, and sometimes along manmade roadside ditches.
1. Development along piped watercourses and roadside ditched segments of regulated streams are subject to a 10 foot setback from the centerline of the stream course and is subject to the recording of a utility easement granted to the city for access and maintenance of the watercourse infrastructure.
 2. The voluntary opening and restoration or rehabilitation of previously channelized, culverted, or piped streams is highly encourage and may be approved by the Decision Maker, when the following is demonstrated within a critical areas report:
 - a. The restoration will result in a net gain in FWHCA functions, including an improvement in water quality and ecological functioning;
 - b. Opened channels must be designed to support fish and wildlife habitat and uninhibited fish access, unless demonstrated to be infeasible;
 - c. A reduction to the standard buffer is allowed to a minimum of 25 foot, or as recommended by a qualified professional in the Critical Area Report. Measured from the Ordinary High Water Mark (OHWM) and which includes habitat improvements, and measures to prevent erosion, landslide and water quality impacts;
 - d. The proposal will not significantly increase the threat of erosion, flooding, slope stability or other hazards on the site or on adjacent properties.
 - e. The proposal must demonstrate that there conveyance will maintain the flow capacity and not create flooding elsewhere in the drainage basin.
- H. **Stream Enhancement Measures.** Only those enhancement measures deemed most applicable and/or appropriate for stream channel or buffer enhancement projects will be considered in a buffer modification proposal, and must be supported by best available science and a critical area report. These include, but are not limited to:
1. Removal of fish barriers to restore accessibility to fish.
 2. Enhancement of fish habitat using log structures incorporated as part of a fish habitat enhancement plan.
 3. Enhancement of fish and wildlife habitat structures that are likely to be used by wildlife, including wood duck houses, bat boxes, nesting platforms, snags, rootwads/stumps, birdhouses, and heron nesting areas.

4. Planting native vegetation within the buffer area, especially vegetation that would increase value for fish and wildlife, increase stream bank or slope stability, improve water quality, or provide aesthetic/recreational value; or
5. Creation of a surface channel where a stream was previously underground, in a culvert or pipe. Surface channels which area “daylighted” must be located within a buffer area and must be designed with energy dissipating functions or channel roughness features such as meanders and rootwads to reduce future bank failures or nearby flooding;
6. Removal or modification of existing stream culverts (such as road crossings) to improve fish passage, stream habitat, and flow capacities; or
7. Upgrading of retention/detention facilities or other stormwater management facilities beyond required levels.

19.70.350 Fish and wildlife habitat – Specific Standards for Other FWHCAs

- A. **Endangered, Threatened, and Sensitive Species.** Fish and wildlife habitat conservation areas or buffers with which species that are State or Federally listed as endangered, threatened, or sensitive species, and anadromous fish species are subject to the following:
 1. No development is allowed within a fish and wildlife habitat conservation area or buffer with which State or Federally endangered, threatened, or sensitive species have a primary association, except that which is provided for by a management plan established by the Washington Department of Fish and Wildlife or applicable State or Federal agency.
 2. Whenever activities are proposed adjacent to a fish and wildlife habitat conservation area with which State or Federally endangered, threatened, or sensitive species have a primary association, such area must be protected through the application of protection measures in accordance with a critical area report prepared by a qualified professional and approved by the City. Approval for alteration of the fish and wildlife habitat conservation area or its buffer may not occur prior to consultation with the Washington Department of Fish and Wildlife for animal species, the Washington State Department of Natural Resources for plant species, and other appropriate Federal or State agencies.
- B. **Other Priority Habitats and Species.** Fish and wildlife habitat conservation areas or buffers with which species that are not State or Federally listed as endangered, threatened, or sensitive species, and are not anadromous fish species are subject to the following:
 1. Development activities and uses that result in unavoidable impacts may be permitted in priority species habitat areas and associated buffers in accordance with an approved critical area report with habitat assessment/management plan, and only if the proposed activity is the only reasonable alternative that will accomplish the applicant’s objectives. Full compensation for the loss of acreage and functions of habitat and buffer areas must be provided in compliance with the mitigation performance standards and requirements of these regulations.

C. City-Designated Habitats and Species of Local Importance

1. Anacortes Community Forest Lands.

- a. Recreation and Recreation-Related Facilities. Construction of public recreation-related facilities such as trails, benches, interpretive displays, and viewing platforms, may be allowed in fish and wildlife habitat conservation areas or buffers
- b. Proposed alterations must be consistent with the adopted Anacortes Community Forest Lands Comprehensive Plan, as amended.
- c. Noxious and Invasive Plants. The Skagit County noxious weed ordinance and the ACFL invasive plant control program must be carefully considered in any adjacent development decision. Nonnative plants known to be invasive into the ACFL must be prohibited in landscaping plans of adjacent developments. Where such developments have CC&Rs, reference to this requirement must be included therein.
- d. Right of Way Vacations. In the case of street or alley vacations contiguous with an ACFL boundary, the half of the area vacated which is adjacent to the ACFL must be incorporated into the ACFL and subject to all ACFL related requirements.
- e. Private Access to ACFL. No new accesses will be established to the ACFL without prior request for such access to the parks and recreation department and the forest advisory board and approval by the city council.
- f. Burning. No burn piles or outdoor fires must ever be left unattended while ignited and in the event sparks or flames come within three hundred feet of the ACFL, the fire must immediately be brought under control or extinguished.
- g. Boundary Identification. City staff will work closely with property owners and developers to ensure that survey lines adjacent to the ACFL boundary are clearly and correctly marked before any timber and/or vegetation is removed from adjacent property. The forest manager will be involved in the final inspection of boundary lines.
- h. ACFL Buffers. City staff will work closely with builders to secure thirty-foot ACFL buffers using all available incentives.

2. March Point Heronry

- a. Because Skagit County is home to the greatest concentration of nesting Great Blue Heron in the Salish Sea, March Point being the largest, the City has identified the March Point Heronry as a habitat of local importance.
- b. Proposed development activities within 1,000 feet, or that is likely to impact the colony, must provide a critical areas assessment report and habitat management plan that follows at a minimum the guidelines provided by WDFW's Management Recommendations for Washington's Priority Species (March 2012).
https://wdfw.wa.gov/publications/00026/abbreviated_great_blue_heron.pdf.

- c. Buffers will be implemented as described in the buffer section below.
- d. Colony protection is required for minimum 10-years after abandonment.

D. Required Buffer for Non-Stream FWHCA's:

1. **Marine FWHCA's Buffers.** Buffer for all designated fish and wildlife habitats or species within marine shorelines must be regulated by the Shoreline Master Program incorporated Critical Area regulations.
2. **All Other Non-Stream FWHCA Buffers.** Buffers from fish and wildlife habitat conservation areas must be established to protect the functions and values of the critical area from the impacts of proposed adjacent activities.
 - a. Buffer widths for fish and wildlife habitat areas must be based on consideration of the following factors: species-specific recommendations of the Washington State Department of Fish and Wildlife; recommendations contained in a habitat management plan submitted by a qualified professional; and the nature and intensity of land uses and activities occurring on the land adjacent to the site. Buffers must:
 - i. Consist of an undisturbed area of native vegetation, or areas identified for restoration, sufficient to protect the integrity, functions, and values of the affected habitat;
 - ii. Reflect the sensitivity of the habitat and the type and intensity of human activity proposed to be conducted nearby;
 - iii. Be consistent with the applicable species-specific management recommendations issued by the Washington Department of Fish and Wildlife.
 - b. Nesting bald eagles and bald eagle habitat must be protected consistent with the U.S. Fish and Wildlife Service (USFWS) National bald eagle management guidelines, or the state or federal regulations in place at the time of application. Whenever activities are proposed adjacent to a confirmed nest territory or communal roost, a bald eagle habitat management plan must be developed by a qualified professional. Activities are adjacent to managed bald eagle sites when they are within 660 feet of a nest or within one-half mile (2,640 feet) of a shoreline foraging area. Approval of the activity must not occur prior to consultation with the state or federal agency with authority on bald eagle pairs and their nest.
 - c. Great Blue Heron nesting and breeding areas: Development near a verified heron breeding habitat including nesting colony areas, former nesting colonies, pre-nesting staging areas, and breeding season foraging habitat require:

- i. A year-round urban buffer of 197 feet,
- ii. For unusually load activities that occur during breeding season (February – September) a seasonal buffer of 656 feet, and a Blasting buffer of 3,280 feet.
- iii. A management plan developed by a qualified professional to follow, at a minimum, WDFW’s Management Recommendations for Washington’s Priority Species (March 2012).

19.70.360 Fish and wildlife habitat – Buffer Width Averaging for All FWHCA’s.

- A. Approval Criteria. The Decision maker may allow the averaging of FWHCA buffer widths when the critical areas report demonstrates the following:
 - 1. In-stream or buffer habitat functions, will be increased or maintained where native buffer vegetation is generally intact, or increased where existing buffer vegetation is inadequate to protect functions and values; and
 - 2. The buffer averaging does not reduce the functions or values of the stream or FWHCA buffer; and
 - 3. The total area contained in the buffer area after averaging on the development proposal site is no less than that which would be contained within the standard buffer, and all increases in buffer dimension for averaging must be parallel to the ; and
 - 4. The stream or FWHCA buffer contains variations in sensitivity due to existing physical characteristics or the character of the buffer varies in slope, soils, or vegetation; and
 - 5. The buffer width is not reduced in any location to less than 50 percent of the standard width or 35 feet, whichever is greater, on a case-by-case basis as a result of a habitat assessment pursuant to AMC 19.70.380 (B)(4); and
 - 6. The buffer has not been reduced in accordance with this section. Buffer averaging is not allowed if the buffer has been reduced; and
 - 7. There were no feasible alternatives to the site design without buffer averaging; and
 - 8. Buffer enhancement will be provided.
 - 9. The buffer width reduction will not be located within another critical area or associated buffer; and
 - 10. Only those portions of the FWHCA buffer within the project area or subject parcel may be considered in the total buffer area for buffer averaging.

19.70.370 Fish and wildlife habitat – Stormwater Management Facilities.

Establishment of low-impact stormwater management facilities, such as stormwater dispersion outfalls and bioswales, may be allowed within fish and wildlife habitat conservation area buffers consistent with the adopted stormwater manual; provided, that:

- A. No other location is feasible; and
- B. There will be “no net loss” of functions and values of the fish and wildlife habitat conservation area; and
- C. The critical area lies in the natural routing of the runoff, and the discharge follows the natural routing; and
- D. Stormwater dispersion outfalls, bioswales, bioretention facilities, and other low-impact facilities consistent with the adopted stormwater manual may be allowed within the outer 25% of the buffer when determined by a qualified professional that the location of the facilities will enhance the buffer area and protect the stream; and
- E. Such facilities are designed consistent with the requirements of AMC 19.76.

19.70.380 Fish and wildlife habitat – Critical area report additional requirements.

- A. **Additional Report Contents for FWHCA's.** In addition to the minimum report contents required per AMC 19.70.125 FWHCA reports must also include;
 - 1. Documentation of any fieldwork performed on the site, including field data sheets for delineations, water typing and other habitat conservation area classification, baseline hydrologic data, site photos, etc.;
 - 2. A description of the methodologies used to conduct the delineations, classifications, or impact analyses, including reference;
 - 3. A discussion of the potential impacts to the critical area or buffer associated with the proposed development including an assessment of cumulative impacts.
- B. **Habitat Assessment /Management Plan.** A habitat assessment /management plan is an investigation of the project area to evaluate the potential presence or absence of designated critical fish or wildlife species or habitat. A critical area report for a fish and wildlife habitat conservation area must contain an assessment of habitats including the following site- and proposal-related information at a minimum:
 - 1. Detailed description of vegetation on and adjacent to the project area and its associated buffer;
 - 2. Identification of any species of local importance, priority species, or endangered, threatened, sensitive, or candidate species that have a primary association with habitat on or adjacent to the project area, and assessment of potential project impacts to the use of the site by the species;

3. A discussion of any Federal, State, or local special management recommendations, including Washington Department of Fish and Wildlife habitat management recommendations, that have been developed for species or habitats located on or adjacent to the project area;
 4. A detailed discussion of the direct and indirect potential impacts on habitat by the project, including potential impacts to water quality;
 5. A discussion of measures, including avoidance, minimization, and mitigation, proposed to preserve existing habitats and restore any habitat that was degraded prior to the current proposed land use activity and to be conducted in accordance with AMC 19.70.135, Mitigation Requirements;
 6. A discussion of ongoing management practices that will protect habitat after the project site has been developed, including proposed monitoring and maintenance programs.
- C. **Additional Technical Information Requirements for Streams.** If no project impacts are anticipated and standard stream buffer widths are retained, a stream delineation report, general critical areas report or other reports, alone or in combination, may be submitted as consistent with the specific requirements of this section. In addition to the general critical area report requirements for fish and wildlife habitat conservation areas provided in subsections A through D of this section, technical information on streams must include the following information at a minimum:
1. A written assessment and accompanying maps of the stream and associated hydrologic features on and off site within 300 feet of the project area, including the following information at a minimum: Stream survey showing the field delineated ordinary high water mark(s);
 - a. Standard stream buffer boundary as determined by AMC 19.70.340;
 - b. Boundary for proposed stream buffers averaging, if applicable;
 - c. Vegetative, faunal, and hydrologic characteristics;
 - d. Soil and substrate conditions; and
 - e. Topographic elevations, at two-foot contours;
 2. A detailed description and functional assessment of the stream channel and stream buffer under existing conditions pertaining to the protection of stream functions, fish habitat and, in particular, potential anadromous fisheries;
 3. A habitat and native vegetation conservation strategy that addresses methods to protect and enhance on-site habitat and stream functions;
 4. Proposed buffer enhancement, if needed, including a written assessment and accompanying maps and planting plans for buffer areas to be enhanced, including the following information at a minimum:

- a. A description of existing buffer conditions;
- b. A description of proposed buffer conditions and how proposed conditions will increase buffer functions in terms of stream and fish habitat protection;
- c. Performance standards for measuring enhancement success through a monitoring period of at least five years; and
- d. Provisions for monitoring and submission of monitoring reports documenting buffer conditions, as compared to performance standards, for enhancement success;
- e. A discussion of ongoing management practices that will protect stream functions and habitat value through maintenance of vegetation density within the stream buffer.

D. Additional Technical Information for Heron Habitat.

- 1. The Report must identify the Heron Management Area (HMA). A HMA consist of the nesting colony, year-round and seasonal buffer, foraging habitat, and when present, a pre-nesting congregation area.
- 2. All survey activity such as nest tree identification and flagging **should occur in the non-breeding season (mid-September to mid-February)**, and preferably right after breeding season ends.
- 3. Identify the nesting colony's boundary. To do this flag all nest trees at the colony's outer perimeter. Mark each of these trees on a map. If a nest tree's canopy overlaps the canopy of an adjacent tree, flag the adjacent tree and consider this to be a nest tree. The outermost nest trees will be used to map the nesting colony boundary.
- 4. Map outer perimeter of the 197 foot year-round buffer. Using the buffer radius, draw a circle around each peripheral nest tree.
- 5. Map seasonal buffer if any unusually loud activities will occur during breeding season (February – September). Measure the seasonal buffer starting at the outer edge of the year-round buffer.
- 6. Locate potential foraging habitat by mapping all waterbodies within a 1.9 mile radius of the colony. The perimeter and shallow portions are especially important for foraging.

E. **Additional FWHCA information.** When appropriate due to the type of habitat or species present, or the project area conditions, the Decision Maker may also require the critical area report to include:

- 1. A request for consultation with the Washington State Department of Fish and Wildlife (DFW), Washington Department of Ecology (Ecology), local Native American Indian tribes or other appropriate agency;
- 2. Copies of the Joint Aquatic Resource Permit Application (JARPA) and related approvals, such as a Hydraulic Project Approval (HPA) from the WDFW, when applicable to the project; and

3. Detailed surface and subsurface hydrologic features both on and adjacent to the site.

19.70.390 Fish and wildlife habitat – Mitigation performance standards and requirements.

- A. Compensatory mitigation for FWHCA's must follow the plan requirements described under **AMC 19.70.135.**

GEOLOGICALLY HAZARDOUS AREAS

19.70.400 Geologically Hazardous Areas– Description and Purpose.

- A. Geologically hazardous areas include areas susceptible to the effects of erosion, landslides, earthquake, or other geologic events. They pose a threat to health and safety of citizens when incompatible development is sited in areas of significant hazard.
- B. The primary purpose of these regulations is to avoid and minimize potential impacts to life and property from geologic hazards, conserve soil resources, and minimize structural damage relating to these hazards. The purpose is accomplished through appropriate levels of study and analysis, application of sound engineering principles, and regulation or limitation of land uses, including maintenance of existing vegetation, regulation of clearing and grading activities, and control of stormwater.

19.70.410 Geologically Hazardous Areas - Designation.

- A. Areas susceptible to one or more of the following types of hazards are designated as a geologically hazardous area:
 1. **Erosion Hazard Areas.** Erosion hazard areas include areas likely to become unstable, such as bluffs, steep slopes, and areas with unconsolidated soils. The following are considered known or suspected erosion hazards:
 - a. Areas located within the following soil map units: Nos. 46 and 47 Dystric Xerochrepts; No. 90 Lithic Haploxerolls-Rock outcrop complex (LH), or mapped severe erosion hazard, as identified in the U.S. Department of Agriculture Natural Resources Conservation Service Soil Survey of Skagit County Area, WA (1989).
 - b. Coastal, erosion-prone areas such as beaches or marine bluffs.
 - c. Areas susceptible to rapid stream incision and stream bank erosion.
 2. **Landslide Hazard Areas.** Landslide hazard areas are those areas subject to landslide activity based on a combination of geologic, topographic, and hydrologic factors. They include areas susceptible because of any combination of bedrock, soil, slope (gradient), slope aspect, structure, hydrology, or other factors. The following are known or suspected landslide hazards:

- a. Areas designated in the Washington State Department of Ecology Coastal Zone Atlas, Washington, Volume Two Skagit County (1978) as U (Unstable), UB, (Unstable Bluff), URS (Unstable Recent Slide), or UOS (Unstable Old Slide).
 - b. Areas of previous failure such as earth slumps, earthflows, mudflows, lahars, debris flows, rock slides, landslides or other failures as observed in the field or as indicated on maps or in technical reports published by the U.S. Geological Survey, the Geology and Earth Resources Division of the Washington Department of Natural Resources, or other documents authorized by government agencies.
 - c. Slopes having gradients of 15% or greater:
 - i. That intersect geologic contacts with permeable sediments overlying low-permeability sediment or bedrock and springs or groundwater seepage are present; or
 - ii. That are parallel or subparallel to planes of weakness (such as bedding planes, joint systems, and fault planes) in subsurface materials.
 - d. Areas that have shown movement during the Holocene epoch (from ten thousand years ago to the present) or that are underlain or covered by mass wastage debris of that epoch.
 - e. Slopes having gradients steeper than 80% subject to rock fall during seismic shaking.
 - f. Potentially unstable areas resulting from rapid stream incision, stream bank erosion, and undercutting by wave action.
 - g. Slopes with a gradient of 40% or more with a vertical relief of 10 feet or more, including marine bluffs, except areas composed of consolidated rock. A slope is delineated by establishing its toe and top and is measured by averaging the inclination over at least 10 feet of vertical relief.
3. **Seismic Hazard Areas.** Seismic hazard areas are lands that, due to a combination of soil and groundwater conditions, are subject to risk of damage as a result of earthquake induced ground shaking, slope failure, settlement or subsidence, soil liquefaction, or surface faulting. The following are known or suspected seismic hazards:
- a. Areas having “high” and “moderate to high” risk of liquefaction as mapped on the Liquefaction Susceptibility and Site Class Maps of

Western Washington State by County published by the Washington State Department of Natural Resources. These are typically underlain by cohesionless soils of low density typically and mustow groundwater table.

- b. Areas located within ¼ mile of an active fault as indicated on investigative maps or described in studies by the United States Geologic Survey, Geology and Earth Resources Division of the Washington Department of Natural Resources, or other documents authorized by government agencies, or identified during site inspection.
 - c. Those known or suspected landslide hazards referenced in Subsection (2) of this Section.
- 4. **Mine Hazard Areas.** Mine hazard areas are those areas underlain by or affected by mine workings such as adits, gangways, tunnels, drifts, or airshafts, and those areas of probable sink holes, gas releases, or subsidence due to mine workings. Factors that should be considered include: proximity to development, depth from ground surface to mine working, and geologic material.
- 5. **Volcanic Hazard Areas.** Volcanic hazard areas are areas subject to pyroclastic flows, lava flows, debris avalanche, and inundation by debris flows, lahars, mudflows, or related flooding resulting from volcanic activity. Though there are no significant risks identified for the City and immediate surrounding area, other than airborne particulate impacts from an eruptions
- 6. **Tsunami hazard areas.** Tsunami hazard areas include coastal areas and lake shoreline areas susceptible to flooding, inundation, debris impact, and/or mass wasting as the result of coastal wave action generated by seismic events or other geologic events. Suspected tsunami hazard areas are indicated on the Tsunami Hazard Map of the Anacortes-Whidbey Island Area, Washington: Modeled Tsunami Inundation from a Cascadia Subduction Zone Earthquake.
- 7. **Other Hazard Areas.** Geologically hazardous areas may also include areas determined by the Decision maker to be susceptible to other geological events including mass wasting, debris flows, rock falls, and differential settlement.
- B. All areas within the city meeting one or more of these criteria, regardless of any formal identification, are hereby designated critical areas and are subject to the provisions of this chapter.

19.70.420 Geologically Hazardous Areas – Mapping.

- A. The approximate location and extent of geologically hazardous areas are shown on the City of Anacortes geologically hazardous data layers maintained in the City of Anacortes geographic information system (GIS). In addition, the following maps and resources providing

information on the location and extent of geologically hazardous areas are hereby adopted by reference as amended:

1. Skagit County, Skagit County Potential Landslide and Erosion Areas, 2016;
2. Washington Department of Ecology Coastal Zone Atlas (for marine bluffs);
3. U.S. Geological Survey geologic maps, landslide hazard maps, and seismic hazard maps;
4. Washington State Department of Natural Resources seismic hazard maps for Western Washington, including, but not limited to, the Liquefaction Susceptibility and Site Class Maps of Western Washington State by County;
5. Washington State Department of Natural Resources slope stability maps;
6. Soils maps produced by the U.S. Department of Agriculture, National Resources Conservation Service;
7. National Oceanic and Atmospheric Administration tsunami hazard maps;
8. Washington Department of Natural Resources Tsunami Hazard Map, or as updated, of the Anacortes-Whidbey Island Area, Washington: Modeled Tsunami Inundation from a Cascadia Subduction Zone Earthquake.

B. Reference Only. The maps and resources cited above are to be used as a guide for the City of Anacortes Planning, Community & Economic Development Department, project applicants, and/or property owners and may be continuously updated as new critical areas are identified. They are a reference and do not provide a final critical area designation.

19.70.430 Geologically Hazardous Areas – General Development Standards.

- A. All development activities and uses are prohibited in geologically hazardous areas and their buffers, except as provided for in this chapter, and only when it is demonstrated that the activity will not create undue risk to life, health, and safety.
- B. **Exemptions and Allowed Activities.** Exemptions are listed in the provisions established in AMC AMC 19.70.035 Exempt Activities.
- C. **Approvals.** Alterations of geologically hazardous areas or associated buffers may only occur pursuant to this chapter, and as determined by a qualified professional with concurrence by a 3rd party review, for activities that:
 1. Will not increase the threat of the geological hazard to adjacent properties beyond pre-development conditions;
 2. Will not adversely impact other critical areas;
 3. Are designed so that the hazard to the project is eliminated or mitigated to a level equal to or less than pre-development conditions; and

4. Are determined to be safe as designed and under anticipated conditions by a qualified professional, licensed in the state of Washington.
- D. **Mitigation.** Proposed mitigation techniques are considered to provide long-term hazard reduction only if they do not require regular maintenance or other actions to maintain their function. Mitigation may be required to avoid any increase in risk above the preexisting conditions, including following abandonment of the activity.
- E. **Critical Facilities Prohibited.** Critical facilities may not be sited within geologically hazardous areas unless there is no other practical alternative.
- F. **International Building Code.** All development must conform to the provisions of the currently adopted International Building Code as amended by the City of Anacortes, including submittal of a critical areas report.

19.70.440 Geologically Hazardous Areas – Specific Development Standards

- A. **Erosion or Landslide Hazard Areas.** Except as otherwise provided in this Chapter, only those activities approved and permitted consistent with an approved critical area report in accordance with this Chapter are allowed in erosion or landslide hazard areas. Activities must meet the standards of AMC 19.70.430, General development standards, in addition to the specific requirements contained in this subsection.
 1. **Standard Buffer.** A standard buffer of 50 feet is required from the closest edge of a landslide hazard area. The buffer must be maintained as undisturbed native vegetation, except when alteration of vegetation is approved by the Decision maker as part of the project.
 2. **Buffer reduction.** The Decision Maker may reduce the standard buffer by a minimum of 25% when the critical area report demonstrates that all of the following criteria are met:
 - a. No reasonable alternative to the buffer reduction exists;
 - b. Modified or reduced buffers, through design and engineering solutions, will provide protection to the proposed development and adjacent properties equal to that of the standard buffer;
 - c. The development will not increase surface water discharge or sedimentation to adjacent properties beyond pre-development conditions;
 - d. The development will not decrease slope stability on adjacent properties;
 - e. The proposed reduction will not adversely impact other critical areas;

- f. The critical areas report makes recommendations regarding planting of vegetation or other measures to minimize impacts and resist erosion.
 - g. When a buffer reduction is requested the Decision maker may require, at the applicant's expense, a third-party review of a critical area report by a Qualified Professional under contract with or employed by the City.
- 3. **Increased buffer.** The standard buffer may be increased by the Decision maker based on a critical areas report prepared by a qualified professional that indicates a greater buffer is necessary to protect the proposed development and/or adjacent properties.
- 4. **Alterations.**
 - a. Alterations of a marine bluff or its buffer are prohibited except that minor development to provide public access (e.g. public trails, stairs or view points) may be permitted as regulated in the Shoreline Master Program, provided that impacts are mitigated and the development can be shown to be safe.
 - b. Alterations of an erosion or landslide hazard area and/or buffers may only occur for activities for which a critical areas report that contains a hazards analysis is submitted which determines that:
 - i. The activity will not increase surface water discharge or sedimentation to adjacent properties beyond predevelopment conditions;
 - ii. The activity will not decrease slope stability on adjacent properties;
 - iii. Such alteration will not adversely impact other critical areas or pose a potential threat risk to life, health, and safety.
 - c. Alterations must be designed to meet the following basic requirements:
 - i. The proposed alteration must not decrease the slope stability. The factor of safety against landslide occurrences for residential and commercial developments must be 1.5 for static conditions and 1.2 for dynamic conditions, unless approved by the Decision maker. Analysis of dynamic conditions must be based on a minimum horizontal acceleration as established by the current version of the International Building Code.
 - ii. Structures and improvements must be clustered to avoid geologically hazardous areas and other critical areas,
 - iii. Structures and improvements must minimize alterations to the natural contour of the slope, and foundations must be tiered where possible to conform to existing topography,

- iv. Structures and improvements must be located to preserve the most critical portion of the site and its natural landforms and vegetation,
- v. The proposed development must not result in greater risk or a need for increased buffers on neighboring properties;
- vi. Development must be designed to minimize impervious lot coverage;
- vii. The Decision maker may accept an alternative design that deviates from one or more of these standards if a report by a qualified professional demonstrates that greater long-term slope stability can be achieved while meeting all other provisions of this title. The requirement for long-term slope stability must exclude designs that require regular and periodic maintenance to maintain their level of function.

d. **Additional Requirements for Alteration of Landslide hazard areas and buffers.** Prior to permit issuance, the property owner must sign and record a notice on title, at the owner's sole expense, a covenant in a form acceptable to the City, which:

- i. Acknowledges and accepts the risks of development in the landslide hazard area;
- ii. Waives any rights to claims against the City;
- iii. Indemnifies and holds harmless the City against claims, losses, and damages;
- iv. Informs subsequent owners of the property of the risks and the covenant; and

5. **Vegetation Retention and Maintenance.** Removal of vegetation from a landslide hazard area or related buffer is prohibited, except when allowed as follows:

- a. As part of an approved alteration, that follows the criteria and process outlined in AMC 19.70.440(A)(4).
- b. Normal nondestructive pruning and trimming of vegetation for maintenance purposes or thinning of limbs of individual trees to provide a view corridor when a plan prepared by an ISA-certified arborist is provided and approved by the Decision Maker and there are no other critical areas present.
- c. All activity proposed on Marine Bluffs must be regulated and reviewed under the SMP and required shoreline permitting.

6. **Seasonal Restriction.** Clearing within an erosion or landslide hazard area or buffer may be allowed only from May 1st to October 1st of each year provided that the Decision maker

may extend or shorten the dry season on a case-by-case basis depending on actual weather conditions and other factors deemed relevant.

7. **Utility Lines and Pipes.** Utility lines and pipes may be permitted in landslide hazard areas and buffers only when the applicant demonstrates that no other practical alternative is available. The line or pipe must be located aboveground and properly anchored and/or designed with the intent to function in the event of an underlying slide.
8. **Stormwater management.** Prior to any development activity, a plan for the collection, transport, treatment, and discharge of stormwater in accordance with the requirements of AMC Chapter 19.76, or as amended, and in accordance with the adopted Stormwater Management Manual for Western Washington, must be submitted meeting the following requirements:
 - a. All infiltration systems, such as stormwater detention and retention facilities, and curtain drains utilizing buried pipe or French drains, are prohibited in landslide hazard areas and their buffers unless the critical areas report determines such facilities or systems will not adversely affect slope stability.
 - b. Stormwater may not be directed across the face of a landslide hazard or related buffer (including marine bluffs or ravines) except as follows:
 - i. Stormwater may be discharged at flow durations matching predeveloped conditions, with adequate energy dissipation, into existing channels that previously conveyed stormwater runoff in the predeveloped state;
 - ii. Stormwater may be dispersed upslope of the landslide hazard area onto a low-gradient undisturbed buffer demonstrated to be adequate to infiltrate all surface and stormwater runoff, if the critical areas report determines such facilities or systems will not adversely affect slope stability;
 - iii. If demonstrated that no other practical alternative is available, stormwater may be discharged from the hazard area into adjacent waters, provided it is collected above the hazard and directed to the water by a tight line drain (constructed of high-density polyethylene pipe with fuse-welded joints, or similar product that is technically equal or superior) and provided with an energy dissipating device at the point of discharge.
9. **Prohibited development.** On-site sewage disposal systems, including drain fields, are prohibited within erosion and landslide hazard areas and related buffers.

10. Subdivisions.

- a. The division of land in landslide hazard areas and associated buffers is subject to the following:
 - i. Land that is located wholly within a landslide hazard area or its buffer may not be subdivided. Land that is located partially within a landslide hazard area or its buffer may be divided provided that each resulting lot has sufficient buildable area outside of, and will not affect, the landslide hazard or its buffer;
 - ii. Access roads and utilities may be permitted within the landslide hazard area and associated buffers if the Decision maker determines that no other feasible alternative exists, and if the critical areas report determines such development will not adversely affect slope stability
- b. Division of land within erosion hazard areas must comply with the following additional requirements:
 - i. Except as otherwise provided in this section, existing vegetation must be retained on all lots until building permits are approved for development on individual lots;
 - ii. If any vegetation on the lots is damaged or removed during construction of the subdivision infrastructure, the applicant must implement a revegetation plan in those areas that have been impacted prior to final inspection of the site development permit or the issuance of any building permit for the subject property;
 - iii. Clearing of vegetation on individual lots may be allowed prior to building permit approval if the Decision maker determines that:
 - 1. Such clearing is a necessary part of a large-scale grading plan,
 - 2. It is not feasible to perform such grading on an individual lot basis, and
 - 3. Stormwater output from the graded area will meet established water quality standards.

B. Seismic Hazard Areas.

- 1. Activities proposed to be located in seismic hazard areas must meet the standards of AMC 19.70.430(B) and (E).

C. Mine Hazard Areas.

1. Activities proposed to be located in mine hazard area must meet the standards of AMC 19.70.430 General development standards, and the specific following requirements:
 - a. **Alterations.** Alterations of a mine hazard area and/or buffer are allowed, as follows:
 - i. All alterations are permitted within a mine hazard area with a low potential for subsidence,
 - ii. Within a mine hazard area with a moderate potential for subsidence and at coal mine by-product stockpiles, all alterations are permitted subject to a mitigation plan to minimize risk of structural damage using appropriate criteria to evaluate the proposed use, as recommended in the hazard analysis, and
 - iii. Within a mine hazard area with a severe potential for subsidence only those activities allowed in AMC 19.70.035 **Exempt activities** of this chapter will be allowed.
 - b. **Subdivisions.** The division of land in mine hazard areas and associated buffers is subject to the following:
 - i. Land that is located within two hundred feet of a mine hazard area with a severe potential for subsidence may not be subdivided. Land that is located partially within a mine hazard area may be divided provided that each resulting lot has sufficient buildable area that is two hundred feet away from the mine hazard area with a severe potential for subsidence. Land that is located within a mine hazard area with a low or moderate potential for subsidence may be subdivided;
 - ii. Access roads and utilities may be permitted within two hundred feet of a mine hazard area with a moderate or severe potential for subsidence if the city determines that no other feasible alternative exists.
 - c. **Reclamation Activities.** Reclamation activities must conform to the provisions in Chapter 332-18 WAC Excavations For all reclamation activities, including grading, filling, and stockpile removal, as-built drawings must be submitted to the city in a format specified by the Decision maker.

D. Tsunami Hazard Areas.

1. Non-residential activities on sites containing areas susceptible to inundation due to tsunami hazards must provide an evacuation and emergency management plan

2. The construction of structures designated Risk Categories III and IV as specified under currently adopted IBC are prohibited within a tsunami hazard area, except that:
 - a. A vertical evacuation tsunami refuge may be permitted to be located in a tsunami hazard zone provided it is constructed in accordance with FEMA P646;
 - b. Community critical facilities may be permitted to be located within a tsunami hazard zone when such a location is necessary to fulfill their function, provided suitable structure and emergency evacuation measures have been incorporated.

19.70.450 Geologically Hazardous Areas - Critical Area Report Additional Requirements

- A. **Additional Report Contents for Geologically Hazardous Areas.** In addition to the minimum report contents required per AMC 19.70.125 reports must also include;
- B. **Third Party Review Required.** Critical areas reports on geologically hazardous areas are subject to third party review at the owner's sole expense as provided in AMC 19.70.125 (B) and in any of the following circumstances:
 1. A buffer reduction or alteration of a landslide hazard area is proposed.
- C. **Minimum Report Contents for Geologically Hazardous Areas.** The written critical area report(s) must contain the following information, at minimum:
 1. The report must generally follow the Washington State Department of Licensing Guidelines for Preparing Engineering Geology Reports in Washington (2006) and at a minimum report contents required per AMC 19.70.125;
 2. A detailed overview of the field investigations, exploration locations, site photos, published data and references; data and conclusions from past assessments of the site; investigations or studies that support the identification of geologically hazardous areas;
 3. A description of the methodologies used to conduct the geologically hazardous areas evaluations, classification, hazards assessments, and/or analyses of the proposal impacts, including references.
 4. **Assessment of Geological Characteristics.** The assessment must include the following:
 - a. Classification of the type of geologic hazard(s) present in accordance with AMC 19.70.410.
 - b. An assessment of the geologic characteristics of the soils, sediments, and/or rock of the project area and potentially affected adjacent properties, and a review of the site history regarding landslides, erosion, and prior grading. Soils analysis must be accomplished in accordance with accepted classification systems in use in the region.

- c. A description of load intensity, surface and groundwater conditions, public and private sewage disposal systems, fills, excavations, and all structural development; and
 - d. A description of the extent and type of vegetative cover;
 - e. An analysis of proposed surface and subsurface drainage, and the vulnerability of the site to erosion;
5. **Analysis of Proposal.** The report must include a detailed description of the project, its relationship to the geologic hazard(s), and its potential impact upon the hazard area, the project, the subject property, and affected adjacent properties.
6. **Minimum Buffer and Building Setback.** The report must make a recommendation for the minimum no-disturbance buffer and minimum building setback from any geologic hazard based upon the geotechnical analysis.
7. **Additional Technical Information Requirements for Specific Hazards:**
- a. **Erosion and Landslide Hazard Areas.** The technical information required in a critical area report for a project within an erosion or landslide hazard area must also include the following:
 - i. An estimate of the present stability of the subject property, the stability of the subject property during construction, the stability of the subject property after all development activities are completed, and a discussion of the relative risks and slide potential relating to adjacent properties during each stage of development, including the effect construction and placement of structures, clearing, grading, and removal of vegetation will have on the slope over the estimated life of the structures. Quantitative analysis of static and seismic slope stability, modeling, and/or seismic displacement analysis may be required by the Decision maker.
 - ii. A trend analysis of prior rates of erosion, if available.
 - iii. Consideration of the run-out hazard of landslide debris and/or the impacts of landslide run-out on downslope properties;
 - iv. Recommendations for stormwater improvements, locations and methods of erosion control, vegetation management, and/or other means for maintaining long-term soil stability;
 - v. Parameters for design of site improvements including appropriate foundations and retaining structures. These should include allowable load and resistance capacities for bearing and lateral loads, installation considerations, and estimates of settlement performance;

- vi. Earthwork recommendations including clearing and site preparation criteria, fill placement and compaction criteria, temporary and permanent slope inclinations and protection, and temporary excavation support, if necessary; and
- vii. Recommendations for mitigation measures to be implemented in order to minimize the risk to the site and adjacent properties, including slope stabilization measures, if appropriate.

b. **Seismic Hazard Areas.** The technical information required in a critical area report for a project within a seismic hazard area must also include the following:

- i. A complete discussion of the potential impacts of seismic activity on the site (for example, liquefaction, lateral spreading, fault rupture);
- ii. An evaluation of the subsurface soil and groundwater profile, physical properties of the subsurface profiles, and the liquefaction potential of the site;
- iii. Recommendations for mitigation measures to be implemented in order to minimize the risk to the project, and adjacent properties if appropriate.

c. **Tsunami Hazard Areas.** The technical information required in a critical area report for a project within a tsunami hazard area must also include:

- i. A discussion of the potential impacts of the tsunami hazard on the site; and
- ii. Recommendations as to structure construction techniques including but not limited to the use of coastal high hazard performance standards.
- iii. For all development other than single lot, single family residences, an emergency management plan including plans for emergency building exits routes, site evacuation routes, emergency training, notification of local emergency management officials, and an emergency warning system.

d. **Marine Bluffs** A geotechnical engineering report will be required when development is proposed within 50 feet (in all directions) of the toe or crest of a marine bluff, or a distance equal to the height of the slope up to a distance of 100 feet from the crest (measured from the top), whichever is greater.

- i. The report must be based on best available science, existing and proposed uses, risks of slope failure, and coastal erosion rates over the last 75 years, if applicable.
- ii. All proposed development on a marine bluff or in the required buffer must be prohibited, except: as may be allowed in the shoreline-specific Critical Areas Regulations under Subsection A-3.5 of Appendix A of this Master Program, or minor development to provide public access (e.g., public trails, stairs or view points), provided that impacts are mitigated and the development can be shown to be safe.

D. All Geologically Hazardous Areas. The Decision Maker may require additional information deemed necessary to adequately review the proposal.

1. Site and Construction Plans. The critical area submittal for geologically hazardous areas must include a copy of the site plans for the proposal, drawn at an engineering scale, showing:

- a. The type and extent of geological hazard areas, and any other critical areas, and recommended and required buffers on, adjacent to, off site within 200 feet of, or that are likely to impact or be affected by the proposal;
- b. Proposed development, including the location of existing and proposed structures, fill, clearing limits, significant trees to be removed, vegetation to be removed, proposed material stock pile locations, and stormwater management facilities;
- c. The topography, in two-foot contours, of the project area and all hazard areas addressed in the report;
- d. Height of slope, slope gradient, and cross-section of the project area indicating the stratigraphy of the site;
- e. The location of springs, seeps, or other surface expressions of ground water on or off site within 200 feet of the project area or that have the potential to affect or be affected by the proposal;
- f. The location and description of surface water on or off site within 200 feet of the project area or that has the potential to be affected by the proposal.

CRITICAL AQUIFER RECHARGE AREAS

19.70.500 Critical Aquifer Recharge Areas – Description and Purpose.

- A. Critical aquifer recharge areas provide the public with clean, safe, and available drinking water and contribute base flows to protect aquatic resources. Once groundwater is contaminated or depleted, it is difficult, costly, and sometimes impossible to clean up or to recharge.
- B. The purpose of this section is to protect critical aquifer recharge areas from degradation or depletion resulting from new and redeveloping land use activities. Due to the potential vulnerability of groundwater underlying certain aquifer recharge areas to contamination and the importance of such groundwater as sources of public water supply, it is the intent of this section to safeguard groundwater resources by mitigating or precluding future discharges of contaminants from new development activities and redevelopment activities.

19.70.510 Critical aquifer recharge areas - Applicability and hazardous materials questionnaire.

- A. **Applicability.** The provisions of this section apply to regulated facilities that are within or adjacent to those portions of the City of Anacortes designated as critical aquifer recharge areas on the City of Anacortes Critical Areas Map. Regulated activities/facilities are defined as those commercial, industrial and home occupation uses that:
 - 1. Process or handle hazardous materials in regulated quantities; and
 - 2. Treat or store regulated quantities of hazardous materials.
- B. **Hazardous materials questionnaire required.** Applications for development or redevelopment of regulated facilities within the boundaries of critical aquifer recharge areas must be accompanied by a completed hazardous materials questionnaire to determine the regulatory status of the applicant facility. The Decision maker must review the questionnaire to determine whether the facility is regulated under this chapter. If it is determined that the proposal includes a regulated facility that processes, handles, treats, and/or stores hazardous substances as defined by this chapter, the applicant must submit a critical areas report pursuant to this Chapter.

19.70.520 Critical Aquifer recharge areas – Designation.

- A. Critical aquifer recharge areas include:
 - 1. Areas served by groundwater which have been designated as a “Sole Source Aquifer Area” under the Federal Safe Drinking Water Act;
 - a. Areas within a “closed” or “low-flow” stream watershed designated by the Department of Ecology pursuant to RCW 90.22;
 - b. Areas designated as “Wellhead Protection Areas” pursuant to [WAC 246-290](#) and the groundwater contribution area pursuant to [WAC 246-291-125\(3\)\(d\)\(iii\)](#) or otherwise

recognized by the Decision maker as needing wellhead protection. Wellhead protection areas include, for the purpose of this regulation, the identified recharge areas associated with:

- i. The 10-year groundwater time-of-travel for all Group A public water supply wells; or
 - i. The 5-year groundwater time-of-travel for all Group B public water supply wells with a wellhead protection plan filed with the Skagit County Health Department; or
 - ii. Plats serviced by five or more individual wells where the average lot size is equal to or less than two acres for which a wellhead protection plan has been completed and filed with the Skagit County Health Department; or
 - iii. The 1,000-foot radius for individual private drinking water supply wells, as identified by map criterion in section 10.70.530.
- B. All areas within the city meeting one or more of these criteria, regardless of any formal identification, are hereby designated critical areas and are subject to the provisions of this chapter.

19.70.530 Critical Aquifer Recharge Areas – Mapping.

- A. The approximate location and extent of critical aquifer recharge areas are shown on the City of Anacortes critical aquifer recharge area data layers maintained in the City of Anacortes geographic information system (GIS). In addition, the following maps and resources providing information on the location and extent of critical aquifer recharge areas are hereby adopted by reference as amended:
- 1. Areas with soils that have moderate to rapid permeability (>2 inches per hour) as listed in Table 14 of the Soil Survey of Skagit County.
 - 2. Source for identifying drinking water supply wells identified by Agencies such as Washington Department of Ecology and Skagit County Health Department.
- B. **Reference Only.** The maps and resources cited above are to be used as a guide for the City of Anacortes Planning, Community & Economic Development Department, project applicants, and/or property owners and may be continuously updated as new critical areas are identified. They are a reference and do not provide a final critical area designation.

19.70.540 Critical Aquifer Recharge Areas – General Development Standards

- A. Regulated activities/facilities may be permitted in a critical aquifer recharge area only if the applicant can demonstrate that the proposed activity will not cause contaminants to enter the aquifer and that the proposed activity will not adversely affect the recharging of the aquifer.

- B. The proposed regulated activity must comply with the water source protection requirements and recommendations of the federal Environmental Protection Agency, State Department of Health, and the Skagit County Health Department.
- C. **Storage tank permits.** The City of Anacortes specifically regulates and authorizes permits for underground storage tanks pursuant to the International Fire Code and this chapter. The Washington Department of Ecology also regulates and authorizes permits for underground storage tanks (WAC 173-360). The Anacortes Fire Department regulates and authorizes permits for the removal of underground storage tanks.
- D. Owners and operators of facilities with existing underground storage tanks that are located within a critical aquifer recharge area must comply with all release detection requirements as specified in WAC 173-360.
- E. **Spreading or injection of reclaimed water.** Water reuse projects for reclaimed water must be in accordance with the adopted water or sewer comprehensive plans that have been approved by the Washington Department of Ecology and Skagit County Health Department.
 - 1. Surface spreading must meet the groundwater recharge criteria given in RCW 90.46.080 and 90.46.010(10).
 - 2. Direct injection must be in accordance with the standards developed by authority of RCW 90.46.042.
- F. **Prohibited activities and land uses.** The following land uses and activities for new development or redevelopment are prohibited within or adjacent to critical aquifer recharge areas:
 - 1. Landfill activities as defined in WAC 173-304 and WAC 173-351;
 - 2. All underground injection wells as defined in Chapter 173-218 WAC;
 - 3. Disposal of hazardous or dangerous wastes;
 - 4. Mining, including:
 - a. Metals and hard rock mining;
 - b. Sand and gravel mining are prohibited in critical aquifer recharge areas determined to be highly susceptible or vulnerable unless a stormwater quality management plan is approved and followed by the applicant;
 - 5. Wood Treatment Facilities. Wood treatment facilities that allow any portion of the treatment process to occur over permeable surfaces (both natural and manmade);
 - 6. Storage, processing, or disposal of radioactive substances;
 - 7. Dry cleaning establishments using the solvent perchlorethylene; and
 - 8. Other:

- a. Activities that would significantly reduce the recharge to aquifers currently or potentially used as a potable water source;
- b. Activities that would significantly reduce the recharge to aquifers that are a source of significant baseflow to a regulated stream;
- c. Activities that are not connected to an available sanitary sewer system are prohibited from critical aquifer recharge areas associated with sole source aquifers.

19.70.550 Critical Aquifer Recharge Areas – Specific Development Standards for Regulated Facilities

- A. The following mitigation measures, as applicable, are required for development of regulated facilities within a critical aquifer recharge area:
 - 1. Floor drains must not be allowed to drain to the stormwater system and must be designed and installed to meet the Uniform Plumbing Code (UPC) Section 303.
 - 2. If any roof venting carries contaminants, then the portion of the roof draining this area must go through pretreatment pursuant to UPC Section 304(b).
 - 3. All nonresidential vehicle washing must be self-contained or be discharged to a sanitary sewer system, if approved by the sewer utility, and is subject to UPC Sections 708 and 711.
 - 4. Utilize Integrated Pest Management (IPM) practices for pest control and Best Management Practices (BMPs) for the use of fertilizers as described by the Skagit County Local Hazardous Waste Management Program.
 - 5. Facilities installing new underground tanks. All new underground storage facilities used or to be used for the underground storage of hazardous substances or hazardous wastes must meet the requirements of WAC 173-360 and be designed and constructed so as to:
 - a. Prevent releases due to corrosion or structural failure for the operational life of the tank;
 - b. Be protected against corrosion, constructed of non-corrosive material, steel clad with a non-corrosive material, or designed to include a secondary containment system to prevent the release or threatened release of any stored substance; and
 - c. Use material in the construction or lining of the tank which is compatible with the substance to be stored.
 - 6. Aboveground tanks. All new aboveground storage facilities/tanks containing hazardous substances within a critical aquifer recharge area must be constructed, installed, used and maintained to:
 - a. Prevent the release of a hazardous substance to the ground, or groundwater;
 - b. Include an impervious containment area enclosing or underlying the tank or part thereof;

- c. Include a secondary containment system either built into the tank structure or a dike system built outside the tank. The secondary containment system or dike system must have a capacity of at least 110 percent of the primary tank and conform to the requirements of UFC Chapter 7902.2.
7. Vehicle repair and servicing.
 - a. Commercial vehicle repair and servicing must be conducted over impermeable pads and within a covered structure capable of withstanding normally expected weather conditions. Chemicals used in the process of vehicle repair and servicing must be stored in a manner that protects them from weather and provides containment should leaks occur.
 - b. Dry wells are not allowed on sites used for vehicle repair and servicing. Dry wells existing on the site prior to facility establishment must be abandoned using techniques approved by the state Department of Ecology prior to commencement of the proposed activity.
 8. Additional protective measures may be required if deemed necessary by the City of Anacortes.
 9. State and federal regulations – The uses listed below will be conditioned as necessary to protect critical aquifer recharge areas in accordance with the applicable state and federal regulations.

Statutes, Regulations and Guidance Pertaining to Groundwater Impacting Activities

Activity	Statute – Regulation – Guidance
Above Ground Storage Tanks	Chapter 173-303-640 WAC
Animal Feedlots	Chapter 173-216 WAC , Chapter 173-220 WAC
Automobile Washers	Chapter 173-216 WAC, Best Management Practices for Vehicle and Equipment Discharges (WDOE WQ-R-95-56)
Below Ground Storage Tanks	Chapter 173-360 WAC
Chemical Treatment Storage and Disposal Facilities	Chapter 173-303 WAC
Hazardous Waste Generator (Boat Repair Shops, Biological Research Facility, Dry Cleaners, Furniture Stripping, Motor Vehicle Service Garages, Photographic Processing, Printing and Publishing Shops, etc.)	Chapter 173-303 WAC
Injection wells	Federal 40 CFR Parts 144 and 146, Chapter 173-218 WAC

Junk Yards and Salvage Yards	Chapter 173-304 WAC, Best Management Practices to Prevent Stormwater Pollution at Vehicle Recycler Facilities (WDOE 94—146)
Oil and Gas Drilling	WAC 332-12-450, Chapter 173-218 WAC
Wastewater Facilities	Chapter 173-240 WAC
On-Site Sewage Systems (<3,500 gal/day)	Chapter 246-272A WAC, Local Health Ordinances
Large On-Site Sewage Systems (3,500 to 1000,000 gal/day)	Chapter 246-272B WAC, State Health Ordinances
Pesticide Storage and Use	Chapter 17.21 RCW
Sawmills	Chapter 173-303 WAC, Chapter 173-304 WAC, Best Management Practices to Prevent Stormwater Pollution at Log Yards (WDOE 95-53)
Solid Waste Handling and Recycling Facilities	Chapter 173-304 WAC
Surface Mining	Chapter 332-18 WAC
Wastewater Application to Land Surface	Chapter 173-216 WAC, Chapter 173-200 WAC, WDOE Land Application Guidelines, Best Management Practices for Irrigated Agriculture

19.70.560 Critical Aquifer Recharge Areas – Critical area report additional requirements.

- A. **Additional Report Contents for CARA's.** In addition to the minimum report contents required per AMC 19.70.125 CARA reports must also include;
- B. **Minimum Report Contents.** A critical areas report must include a hydrogeologic assessment including, but not limited to, the following:
 1. Information sources;
 2. Geologic and hydrologic setting including available recharge, permeability/transmissivity information;
 3. Available well logs, borings, seeps/springs within 1,000 feet of the project area;
 4. Available water quality information;
 5. Groundwater depth, flow direction and gradient based on available information;
 6. Surface water location and recharge potential;
 7. Water source supply to the site;
 8. Any sampling schedules necessary;
 9. Discussion of the effects of the proposed project on the groundwater resources;

10. Description of potential mitigation measures, should it be determined that the proposed project may have an adverse impact on groundwater resources; and
 11. Other information as required by the City.
- C. If the hydrogeologic assessment determines that the facility will have no effect on groundwater resources, the facility is exempt from the development standards requirements in section 19.70.540 of this Chapter.
 - D. If the hydrogeologic assessment determines that the facility could have an effect on groundwater resources, the Decision maker will require implementation of applicable development standards in sections 19.70.540.

FREQUENTLY FLOODED AREAS

19.70.600 Frequently Flooded Areas – Description and Purpose.

- A. Frequently flooded areas perform important hydrologic functions and may present a risk to persons and property.
- B. It is the purpose of this chapter to promote the public health, safety and general welfare, and to minimize public and private losses due to flood conditions in specific areas caused by flooding, while protecting the functions and values of floodplains, including special consideration for anadromous fish habitat in combination with the provisions for Fish and Wildlife Habitat Conservation Areas in this chapter.

19.70.610 Frequently Flooded Areas – Designation.

- A. Frequently flooded areas include those areas established as special flood hazard areas under AMC 19.74 Floodplain Management, including those areas of special flood hazard identified by the Federal Insurance Administration in a scientific and engineering report entitled “The Flood Insurance Study for the City of Anacortes” dated March 17, 2003, and any revisions thereto, with accompanying flood insurance rate maps (FIRM), and any revisions thereto. The best available information for flood hazard area identification as outlined in AMC 19.74 Use of Other Base Flood Data in A and V zones is the basis for regulation until a new FIRM is issued that incorporates the data utilities under AMC 19.74 Use of Other Base Flood Data in A and V zones.
- B. Tsunami hazard areas are designated as geologically hazardous areas per AMC 19.70.410 and are subject to applicable development regulations outlined in AMC 19.70.430.
- C. Climate change and sea level rise are affecting many coastal communities and some within Puget Sound. Applicants are urged to become familiar with potential impacts of climate change and sea level rise if development is proposed near the marine shoreline or associated low-lying areas.

19.70.615 Frequently Flooded Areas – Mapping.

- A. **Reference Only.** The maps and resources cited above are to be used as a guide for the City of Anacortes Planning, Community & Economic Development Department, project applicants, and/or property owners and may be continuously updated as new critical areas are identified. They are a reference and do not provide a final critical area designation.

19.70.620 Frequently flooded areas – General Development Standards

- A. All development proposals must comply with AMC 19.74 Floodplain Management for general and specific flood hazard protection.

- B. Development may not reduce the base flood water storage ability. Construction, grading or other regulated activities that would reduce the flood water storage ability must be mitigated by creating compensatory storage on or off site.
- C. Alteration of Watercourses.
 - 1. Projects that will relocate a watercourse must also submit a request for Conditional Letter of Map Revision, where required by FEMA. The project may not be approved unless FEMA issues the CLOMR (which requires ESA consultation) and the provisions of the letter are made part of the permit requirements.
 - 2. The Decision maker must notify adjacent communities (if applicable) and the Department of Ecology prior to any alteration or relocation of a watercourse, and submit evidence of such notification to FEMA.
 - 3. Maintenance must be provided within the altered or relocated portion of said watercourse so that flood carrying capacity is not diminished. If the maintenance program does not call for cutting of native vegetation, the system must be oversized at the time of construction to compensate for said vegetation growth or any other natural factor that may need future maintenance.
- D. Base flood data and flood hazard notes must be shown on the face of any recorded plat or binding site plan, including, but not limited to, base flood elevations, flood protection elevation, boundary of floodplain, and zero rise floodway.
- E. All development must conform to the provisions of the currently adopted International Building Code, including submittal of a critical areas report.

19.70.625 Frequently Flooded Areas – Critical Areas Report Additional Requirements

- A. Additional Report Contents for FFA's. In addition to the minimum report contents required per AMC 19.70.125 FFA reports must also include;
- B. Minimum Report Contents. A critical areas report must include a habitat assessment prepared in accordance with [Regional Guidance for Floodplain Habitat Assessment and Mitigation](#) (FEMA Region X, 2013), or as hereafter amended. The assessment must determine if the project would adversely affect:
 - 1. The primary constituent elements identified when a species is listed as threatened or endangered;
 - 2. Essential fish habitat designated by the National Marine Fisheries Service;
 - 3. Fish and wildlife habitat conservation areas;
 - 4. Vegetation communities and habitat structures;
 - 5. Water quality;

6. Water quantity, including flood and low flow depths, volumes and velocities;
 7. The channel's natural planform pattern and migration processes;
 8. Spawning substrate, if applicable; and/or
 9. Floodplain refugia, if applicable.
- C. If the assessment concludes that the activity is expected to have an adverse effect on water quality and/or aquatic or riparian habitat or habitat functions, the project must be designed in a way to off-set those impacts. Project mitigation is not permitted in accordance with Regional Guidance for Floodplain Habitat Assessment and Mitigation, FEMA Region X, 2013.
- D. The following activities do not require completion of a habitat assessment:
1. Repair of existing building in its existing footprint, including damage by fire or other casualties;
 2. Removal of noxious weeds;
 3. Replacement of nonnative vegetation with native vegetation;
 4. Ongoing activities such as lawn and garden maintenance;
 5. Removal of hazard trees;
 6. Normal maintenance of public utilities and facilities;
 7. Restoration or enhancement of floodplains, riparian areas and streams that meets federal and state standards.

DEFINITIONS

“Adjacent” means areas adjacent to critical areas must be considered to be within the jurisdiction of these requirements and regulations to support the intent of this title and ensure protection of the functions and values of critical areas. Adjacent must include lands within a distance equal to the required buffer for the critical area as determined by the provisions of this chapter.

“Anadromous fish” means fish that spawn and rear in freshwater and mature in the marine environment. While Pacific salmon die after their first spawning, adult char (bull trout) can live for many years, moving in and out of saltwater and spawning each year. The life history of Pacific salmon and char contains critical periods of time when these fish are more susceptible to environmental and physical damage than at other times. The life history of salmon, for example, contains the following stages: upstream migration of adults, spawning, inter-gravel incubation, rearing, smoltification (the time period needed for juveniles to adjust their body functions to live in the marine environment), downstream migration, and ocean rearing to adults.

“Aquifer” means a body of soil or rock that contains sufficient saturated material to conduct groundwater and yield usable quantities of groundwater to wells or springs.

“Averaging” means establishing the required buffer setback from a critical area, within the permitted parcel of land only, so that areas within the parcel determined to be more environmentally sensitive than others will have a larger buffer than the less sensitive areas. For every increase in setback for one area of the parcel, there will be an equal corresponding decrease in another area of the parcel. The total land area within the buffer must remain the same as if the buffer were a uniform width. “Aquifer” means a body of soil or rock that contains sufficient saturated material to conduct groundwater and yield usable quantities of groundwater to wells or springs.

“Base flood” means a flood having a one percent chance of being equaled or exceeded in any given year, often referred to as the “100-year flood”.

“Base flood elevation” means the water surface elevation of the base flood in relation to the North American Vertical Datum of 1988. The Anacortes FIRMs still make reference to the 1929 National Geodetic Vertical Datum (NGVD). While using NAVD is acceptable, please recognize that surveyors and designers will need to convert the datum when preparing plans. FEMA Elevation Certificates require the use of the datum utilized on the FIRMs.

“Best available science” means current scientific information used in the process to designate, protect, or restore critical areas that is derived from a valid scientific process as defined by WAC 365-195-900 through 925. Sources of best available science are included in “Citations of Recommended Sources of Best Available Science for Designating and Protecting Critical Areas” published by the Washington State Department of Commerce.

“Best management practices (BMPs), critical areas” means physical or structural tools and/or management practices which, when used singularly or in combination, prevent or reduce adverse impacts to critical areas or their buffers.

“Buffer” is an area contiguous to a critical area that is required to protect the critical area and provide for the continued maintenance, functioning, and/or structural stability of a critical area.

“Critical aquifer recharge areas” are areas with a critical recharging effect on aquifers used for potable water, including areas where an aquifer that is a source of drinking water is vulnerable to contamination that would affect the potability of the water, or is susceptible to reduced recharge.

“Critical areas” means critical aquifer recharge areas, fish and wildlife habitat conservation areas, frequently flooded areas, geologically hazardous areas, streams, and wetlands, as defined in this Chapter.

“Development” means any human-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials.

“Ditches” are artificial drainage features created through purposeful human action, such as irrigation and drainage ditches, grass-lined swales, and canals. Purposeful creation from uplands must be demonstrated through documentation, photographs, statements, and/or other evidence in order to be unregulated by this chapter.

“Enhancement” means an action which increases the functions and values of a stream, wetland, or other critical area or buffer.

“Erosion” means the process by which soil particles are mobilized and transported by natural agents such as wind, rain-splash, frost action or surface water flow.

“Erosion hazard areas” are those areas containing soils which, according to the United States Department of Agriculture Natural Resources Conservation Service Soil Survey Program, may experience significant erosion. Erosion hazard areas also include coastal erosion-prone areas and channel migration zones.

“Federal Emergency Management Agency (FEMA) floodway” means the channel of the stream and that portion of the adjoining floodplain which is necessary to contain and discharge the base flood flow without increasing the base flood elevation more than one foot.

“Fish and wildlife habitat conservation areas” are areas that serve a critical role in sustaining needed habitats and species for the functional integrity of the ecosystem, and which, if altered, may reduce the likelihood that the species will persist over the long term. As defined in AMC 19.70.310.

“Floodway, zero rise” means the channel of a stream and that portion of the adjoining floodplain which is necessary to contain and discharge the base flood flow without any measurable increase in flood height. A measurable increase in base flood height means a calculated upward rise in the base flood elevation, equal to or greater than .01 foot, resulting from a comparison of existing conditions and changed conditions directly attributable to development in the floodplain. This definition is broader than that of the FEMA floodway, but always includes the FEMA floodway. The boundaries of the 100-year floodplain, as shown on the Flood Insurance Study for _____, are considered the boundaries of the zero-rise floodway unless otherwise delineated by a critical area study.

“Floodplain” means the total area subject to inundation by the base flood.

“Frequently flooded areas” are lands in the floodplain subject to at least a one percent or greater chance of flooding in any given year, or within areas subject to flooding due to high groundwater, high tides, with strong winds, sea level rise, and extreme weather events resulting from global climate change. These areas include, but are not limited to streams, rivers, lakes, coastal areas, wetlands, and areas where high groundwater forms ponds on the ground surface.

“Functions and values” means the beneficial services provided by critical areas to society, including, but not limited to, improving and maintaining water quality, providing fish and wildlife habitat, supporting terrestrial and aquatic food chains, reducing flooding and erosive flows, wave attenuation, historical or archaeological importance, educational opportunities, and recreation. These beneficial roles are not listed in order of priority.

“Geologically hazardous areas” means areas that because of their susceptibility to erosion, sliding, earthquake, or other geological events, are not suited to the siting of commercial, residential, or industrial development consistent with public health or safety concerns.

“Groundwater” means water in a saturated zone or stratum beneath the surface of the land or below a surface water body.

“Habitats of local importance” designated as fish and wildlife habitat conservation areas include those areas found to be locally important by the City of Anacortes.

“Hazard tree” means any tree determined by an International Society of Arboriculture (ISA)-certified arborist to be a hazard to people or property as a result of a risk assessment conducted according to ISA guiding principles.

“In-lieu-fee program” means an agreement between a regulatory agency (state, federal or local) and a single sponsor, generally a public natural resource agency or non-profit organization. Under an in-lieu-fee agreement, the mitigation sponsor collects funds from an individual or a number of individuals who are required to conduct compensatory mitigation required under a wetland regulatory program. The sponsor may use the funds pooled from multiple permittees to create one or a number of sites under the authority of the agreement to satisfy the permittees’ required mitigation.

“Landslide” means an episodic downslope movement of a mass including, but not limited to, soil, rock or snow.

“Landslide hazard areas” are areas at risk of mass movement due to a combination of geologic, topographic, and hydrologic factors.

“Mine hazard areas” are those areas directly underlain by, adjacent to, or affected by mine workings such as adits, tunnels, drifts, or airshafts, and those areas probable to sink holes, gas releases, or subsidence due to mine workings.

“Mitigation” means the use of any or all of the following actions listed in descending order of preference:

1. Avoiding the impact by not taking a certain action;
2. Minimizing the impact by limiting the degree or magnitude of the action by using appropriate technology or by taking affirmative steps to avoid or reduce the impact;
3. Rectifying the impact by repairing, rehabilitating or restoring the affected critical area or buffer;
4. Reducing or eliminating the impact over time by preserving or maintenance operations during the life of the development proposal;
5. Compensating for the impact by replacing, enhancing or providing substitute critical areas and environments;
6. Monitoring the impact and taking appropriate corrective measures.

“Mitigation” means avoiding, minimizing, or compensating for adverse critical areas impacts, using the sequential order of preference listed in 19.70.130, Mitigation requirements.

“Monitoring” means evaluating the impacts of development proposals on biologic, hydrologic and geologic systems and assessing the performance of required mitigation through the collection and analysis of data for the purpose of understanding and documenting changes in natural ecosystems, functions and features including, but not limited to, gathering baseline data.

“Native Growth Protection Area/ Easement” (NGPA/E) means.....

“Native vegetation” means plant species that occur naturally in a particular region or environment and were present before European colonization.

“Noxious weed” means any plant which is highly destructive, competitive, or difficult to control by cultural or chemical practices, limited to those plants on the state noxious weed list contained in Chapter [16-750 WAC](#) and those regulated by Skagit County.

“Primary association” means the fundamental link between a species and land or aquatic area where anadromous fish, endangered, threatened or sensitive species breed or feed.

“Repair or maintenance” means an activity that restores the character, scope, size, and design of a serviceable area, structure, or land use to its previously authorized and undamaged condition. Activities that change the character, size, or scope of a project beyond the original design and drain, dredge, fill, flood, or otherwise alter critical areas are not included in this definition.

“Replacement” means.....

“Restoration” means measures taken to restore an altered or damaged natural feature, including: (a) Active steps taken to restore damaged wetlands, streams, protected habitat, or their buffers to the functioning condition that existed prior to an unauthorized alteration; and (b) Actions performed to re-establish structural and functional characteristics of a critical area that have been lost by alteration, past management activities, or catastrophic events.

“Seismic hazard areas” are areas subject to severe risk of damage as a result of earthquake induced ground shaking, slope failure, settlement, soil liquefaction, debris flows, lahars, or tsunamis.

“Shoreline jurisdiction” means.....

“Slope” means an inclined ground surface, the inclination of which is expressed as a ratio or percentage of vertical distance to horizontal distance by the following formula: $((\text{vertical distance} / \text{horizontal distance}) \times 100) = \% \text{ Slope}$

“Special Flood Hazard Area” means the land in the floodplain that is subject to a one percent or greater chance of flooding in any given year. Designation on maps always includes the letters A or V.

“Species of local importance” are those species that are of local concern designated by the City due to their population status or their sensitivity to habitat manipulation.

“Stream” means an area where open surface water produces a defined channel or bed, not including irrigation ditches, canals, storm or surface water runoff devices, or other entirely artificial watercourses, unless they are used by salmonids or are used to convey a watercourse naturally occurring prior to construction. A channel or bed need not contain water year-round, provided there is evidence of at least intermittent flow during years of normal rainfall.

“Unavoidable impacts” means adverse impacts that remain after all appropriate and practicable avoidance and minimization has been achieved.

“Volcanic hazard areas” include areas subject to pyroclastic flows, lava flows, and inundation by debris flows, lahars, mudflows, or related flooding from volcanic activity.

“Wetland” or “wetlands” means those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from non-wetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands include those artificial wetlands intentionally created from non-wetland areas created to mitigate conversion of wetlands.

“Wetland Mitigation Bank” means a site where wetlands are restored, created, enhanced, or in exceptional circumstances, preserved, expressly for the purpose of providing compensatory mitigation in advance of unavoidable impacts to wetlands or other aquatic resources that typically are unknown at the time of certification to compensate for future, permitted impacts to similar resources.

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

**City of Anacortes
Critical Areas Ordinance Revision/Update
Best Available Science updates recommendations report**

1 November 2016

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1.0 EXECUTIVE SUMMARY

ATSI has been retained by the City of Anacortes Department of Community & Economic Development to review the current (2005) Chapter 17.70; Critical Areas Ordinance (CAO) and provide the city with recommendations to update said ordinance using Best Available Science (BAS) standards. This current assessment of BAS is focused on changes in critical areas protection that have taken place since 2005. The BAS used is based on recent regulatory agency guidance, regional and local studies, best professional judgement based on local knowledge and experience, and the use of scientific information.

The city's 2005 CAO protected all critical areas including frequently flooded areas, aquifer recharge areas, geologically hazardous areas, wetlands, and fish and wildlife habitat. All critical areas were qualitatively mapped for the publication of the 2005 CAO. The city is now updating the CAO per the Growth Management Act (RCW 36.70 A) and taking the revised CAO through the city and public review processes. The city expects this current CAO update to be relatively limited in scope with the majority of the focus on provisions relating to wetlands, existing development within buffers, geologically hazardous areas (steep slopes), and vegetation within critical areas buffers.

This document relies on several regulatory guidance and BAS documents as referenced within the contents of this text and the references section as they pertain to the science, body of knowledge, and protection of critical areas.

ATSI has the following recommendations to edit, delete, and add pertinent portions to the updated CAO.

2.0 INTRODUCTION

ATSI has reviewed the city 2005 CAO, reviewed historic comments and provided recommendations during the writing of the 2005 CAO. For guidance during this CAO review, we are using the "*Wetland Guidance for CAO Updates, Western Washington Version, June 2016, Publication No., 16-06-001*" by the Washington State Department of Ecology and recommendations within the *Small Communities Critical Areas Implementation Guidebook, CTED, June 2007*.

The definition of BAS is the use of current scientific information in the process to designate, protect, or restore critical areas that is derived from a valid scientific process as defined by WAC 365-195-900 through 925. BAS also means information gathered, analyzed and presented based on professional experience, expertise and judgment, and established scientific principles and practices. Such principles and practices include peer review, use of scientific methodology, logical analysis and reasonable inference, statistical analysis, rigorous referencing within the scientific literature, and conclusions drawn from within an accepted scientific framework and placed in an appropriate scientific context.

ATSI by trade is a biological consulting company based in Skagit County that was formed in 1997 specializing in assisting clients through the wetland and fish/wildlife

permitting processes. ATSI staff are familiar with the local, state, and federal history of the regulatory process, the history of biological critical area science, biological permitting, definitions, and protection, and, have knowledge of local critical areas.

3.0 GENERAL RECOMMENDATIONS

Generally ATSI recommends the following:

1. Delete portions of the current CAO as described later in this text,
2. Restructure the CAO into a current and typically used format,
3. Create consistency within the CAO such as the use the terms “zoning administrator” to replace planning director,
4. Create a definitions section to define additional language and words within the text,
5. Create a references section that includes both citations from within the text, references used by qualified professionals that will be writing CAO reports, and general body of knowledge BAS.
6. Consider including in the Conditional Use Permit sections for the Planning Department or zoning administrator to determine consistency within the revised CAO with language such as “*Variance from the provisions of this chapter may be granted administratively by the Zoning Administrator.*”
7. Allow for 3rd Party Review for all reports with the applicant funding such review. Insert said language in the CAO,
8. Section 17.70.510 is missing within the text of the CAO. Adjust accordingly. For the purposes of this review, I have referenced the existing Sections as numbered. Therefore, once adjusted, the new numbering will no longer correspond to my comments/edits.
9. Update the rating/categorization system and buffers per Ecology BAS,
10. Throughout the wetland sections, where reference to just “*wetlands*” is stated, add *wetland buffer* to the sentence.
11. Update the required methodologies for critical areas determinations, and,
12. There are general house cleaning edits within the text of the CAO that are “minor” and not addressed specifically within the contents of this report. ATSI recommends, after review of this report and the recommendations of other consultants and agencies, a redraft of this text be prepared as a final document.

4.0 RECOMMENDATIONS

New scientific findings have been published that describe methods for assessing wetlands, and other habitats, on a watershed-based and landscape-scale, alternative mitigation strategies (such as mitigation banking and in-lieu fee programs), improving the success of compensatory mitigation, buffer effectiveness, and methodologies for the identification of wetland (*Regional Supplement and Hydric Soils Identification*) and an Ecology 2012 guidance for Wetlands and CAO updates. These new findings are, or should be, added to the revised CAO.

Additionally, the referenced texts and information listed below, are included within the contents of this document as BAS as well as recommended to be used and/or allowed in professional reports submitted to the city. These include but are not limited to:

1. The United States Army Corps of Engineers (Corps), *Wetland Delineation Manual* (Environmental Laboratory 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (Corps 2010).
2. The Washington Department of Natural Resources Natural Heritage Program to research for natural heritage features associated with wetlands (WDNR 2015).
3. The Washington Department of Fish and Wildlife SalmonScape resource map to determine the presence or absence of fish-bearing streams (WDFW 2016).
4. The WDFW Priority Habitats and Species program habitats or species resource maps (WDFW 2016 (WDFW 2016)).
5. The use of the Washington State Wetland Rating System for Western Washington: 2014 Update (Hruby, 2014).
6. The use of the *"Update on Wetland Buffers: The State of the Science, Final Report* (Hurby 2013).
7. To professionally determine if species of local importance, priority species, or Endangered Species Act listed, proposed, candidate, delisted, or species of concern that have a primary association with habitat during field reconnaissance's. Consult with the WDFW regarding species presence and protection status.
8. The use of the National Wetland Inventory to determine if wetlands are mapped on or adjacent to properties that are reviewed (USFWS 2011).
9. The use of the city wetland and stream map to determine if wetlands or streams are mapped on or adjacent to properties (update as practicable).
10. The use of the city geological hazardous area map to determine if said hazard areas are mapped on or adjacent to properties (update as practicable).
11. Allow the use of mitigation banks and in-lieu fee programs as practicable.
12. Require and/or allow the use of recent compensatory mitigation, buffer effectiveness guidelines and references in professional reports submitted to the city as practicable.
13. Require within the text of all professionally prepared reports the mitigation sequencing of avoidance, minimization, rectifying, reducing/eliminating, preservation, and compensatory mitigation.
14. Require bonding when wetlands and wetland buffers are disturbed and mitigation proposed.
15. Provide comments on Frequently Flooded Areas (to be completed by other consultants).
16. Provide comments on Geologically Hazardous Areas (to be completed by other consultants).
17. Provide comments Climate Change and sea level rise (to be completed by other consultants).

5.0 SPECIFIC RECOMMENDATIONS WITHIN THE TEXT

All references to the CAO below are from the current 2005 CAO. Rationale for updating the CAO is described in this section. Where applicable, when deletions are recommended, they are indicated as deleted, when language is added, it is inserted in *italics*. The term BPJ “Best Professional Judgement” is the opinion of ATSI which is included in the definition of BAS. Not all recommended edits, as some are minor, are indicated below.

1. Add a Table of Contents. Rationale: Standard procedure and ease of review by the users.
2. Remove/delete references to “Article” within the revised CAO and only use the reference number of each Section, such as 17.70.010. Rationale: Professional style, may be re-inserted.
3. Remove references to city Ordinances throughout text such as (Ord. 2702 on Page 2). Rationale: This likely confuses the reader. If re-inserted, said referenced ordinances should be within an appendices of the CAO for easy referencing.
4. Delete 17.70.010 – Introduction. Rationale: This section is a description of the Anacortes Community Forest Lands (ACFL), its history, and future acquisitions. Although the city is commendable for having and protecting such a resource, it is not relevant to a CAO.
5. Restructure, update, combine, move or delete the Vulnerable Species of Anacortes, Vulnerable Animals of Anacortes Vulnerable Plants of Anacortes, and Vulnerable Birds of Anacortes. Rationale: Such lists are typically not a part of a CAO. If inserted in the CAO said lists should be included as appendices. Additionally, species within the list should only be those that are in, or suspected to be in, the city, and those that are protected by the city, or are listed by the state or federal government as threatened, sensitive, or endangered.
6. Update and provide language for Article II. Frequently Flood Areas (FEMA Approved). Rationale: it is understood this will be completed by other consultants.
7. Replace 17.70.020 with standard and common language that is typical for all CAO’s for Purpose and Intent. Rationale: Delete all such language in the relevant sections and replace with a single section stating said common language. Said common language is a section listing critical areas that are included within Chapter 17.70 such as: 1. Frequently Flooded Areas; 2. Aquifer Recharge Areas; 3. Geologically Hazardous Areas; 4. Wetland Protection Areas; and 5. Fish and Wildlife Habitat Conservation Areas. Also include a list of the purpose of the Chapter such as minimizing development impacts; protection of natural resources; prevent erosion and soil loss; protect the public; meet GMA requirements; and introduce the concept of 3rd party review for projects.
8. Insert reference to, as stated in General Recommendations item 7 above, allow revised CAO for 3rd Party Review for all reports with the applicant funding such review and modify all pertinent references within the updated CAO. Rationale: This is typical of many CAO’s and relieves the city of additional expenses.

9. Move 17.70.030 Definitions, as with all Section definitions, into a single definitions Section as an Appendix. Rationale: This is common with most CAO's, it will allow for easier reading of the CAO, and provide the reader with additional information of the content and context of the CAO.
10. Add to Section 17.70.050 Administration (of Frequently Flooded Areas) (e). A Biological Assessment (BA) of potential impacts a project may have on listed species and a summation to a project on sea level rise. Add BA to definitions section. Definition shall state: *Biological assessment means a study prepared by a qualified biologist that describes the biotic and abiotic aspects of the site and surrounding area. This includes, but is not limited to, the flora, fauna, plant communities, habitat(s), streams, wetlands, soils, and topography of and on the site and adjacent area. It shall discuss impacts to listed and locally important species to include language per FEMA Region 10, 2010, Floodplain Management and the Endangered Species Act, A Model Ordinance; or as applicable regarding a specific critical area such as a wetland or stream.* Rationale: This is a standard FEMA requirement and generally required by other federal (such as the Corps) and state agencies. Recommend item 10 be reviewed and supplemented by GeoEngineers or other suitable consultant.
11. Provide a map for Section 17.70.080, Aquifer recharge areas. Rationale: This will provide city staff, the applicant and professional report preparer with the BAS.
12. Provide a map for Section 17.70.180, Designation of geologically hazard areas. Rationale: This will provide city staff, the applicant and professional report preparer with the BAS.
13. Delete 17.70.210 (A)(7), *Maps included as Appendix B to the city comprehensive plan*. All maps referenced in the CAO should be included as Appendices within the revised CAO. Rationale: This will provide city staff, the applicant and professional report preparer with the BAS.
14. Provide consistency within all Sections when reports are required that all critical areas within 300 feet of a project shall be reviewed when/where practicable. Rationale: Recommendations from Ecology and is reasonable and prudent where applicable such as if a critical area is not on an applicant's property but within a critical area buffer.
15. Provide provisions, in Section 17.70.240 for "Hold-Harmless/Notice" in a covenant to be recorded prior to final plat approval. Rationale: Protection for the city.
16. Section 17.70.250.(4) modify language to include "Unless otherwise provided or as part of an approved alteration *plan based on a report prepared by a qualified geotechnical profession, arborist, or biologist, as required by the zoning administrator* removal or alteration..." Rationale: Allows for BPJ by a qualified professional.
17. Regarding 17.70.270 pertaining to Wetlands, where there is mention of mitigation/compensation, add the word "enhancement" and "functions". Rationale: To better match Ecology guidance documents. Recommend editing entire CAO to be consistent when using these terms.
18. Regarding 17.70.290, add "As a result of any development of land, all wetland and wetland buffers on said land shall be indicated on a site plan or plat map as

a regulated critical area and placed in to a protective covenant such as a Native Growth Protection Area or reasonable facsimile”; and delete, “This chapter will be revised prior to December 1, 2006 in order to further consider [sub]section 17.70.340(F)(1) (Standard buffer widths) and Section 17.70.520 (Isolated wetland exemption) of this chapter; no action will create a GMHB appeal opportunity. (Ord. 2702 § 3 (part), 2005)”. Rationale: To be consistent with Ecology guidance and BAS.

19. Regarding 17.70.300 – Rules for interpretation of wetland district boundaries. Add to the following: The boundaries of a specific wetland district shall ordinarily be determined by the applicant through the performance of a field survey applying wetland definition criteria *with said work being completed by a wetland specialist*. Rationale: ATSI recommends to consider removing the requirement that a Professional Wetland Scientist (PWS) (as certified by the Society of Wetland Scientists Professional Certification Program) exclusively works within the city. We recommend that all qualified individuals be allowed to work within the city. Therefore in addition to the above added language we recommend adding; *A wetland specialist has similar credentials as a PWS to include 5 years of working full time as a wetland specialist (professional) and has a Bachelor of Science degree*. The inclusion of all qualified professionals to do wetlands work within the city will broaden the availability of professionals and reduce costs. Another option, per recent comments by Ecology would be to state: *“A PWS should oversee the data collection and report preparation by wetland specialists”*
20. Replace all reference within the CAO of a PWS to *wetland specialist*.
21. Regarding 17.70.300 last sentence, delete “...obtain competent expert services, from a person agreed upon by applicant and planning department, to render a final delineation. Rationale: A “competent expert services” is sufficient. ATSI BPJ.
22. Change all references to Wetland Protection Area or Wetland District to simply “Wetland”. Rational: To provide clarity and consistency within the CAO.
23. Modify Section 17.70.320 (A) and (B) as follows:
 - A. Designating Wetlands. Wetlands are those areas, designated in accordance with the Washington State Department of Ecology, Wetlands Identification and Delineation Manual, March 1997, Pub. No. 96-94, as *designated in accordance with the United States Army Corps of Engineers (Corps), Wetland Delineation Manual (Environmental Laboratory 1987) and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0) (Corps 2010) and as accepted by the Washington State Department of Ecology (Ecology) (Corps 2010), or most recent document, manuals or applicable materials published by the Corps or Ecology*. Wetlands can generally be described as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation adapted for life in saturated soil conditions. All areas within the city meeting the wetland designation criteria *in the above referenced manuals* Identification and Delineation Manual, regardless of any formal identification, not otherwise excluded under Sections 17.70.300, 17.70.340 and

17.70.520 of this chapter are hereby designated critical areas and are subject to the provisions of this title.

B. Wetland Ratings. Wetlands shall be rated according to the August 2004 *Washington State Wetland Rating System for Western Washington: 2014 Update* (Hruby 2014) Washington State - Wetland Rating System found in the Washington State Wetland Rating System for Western Washington, or as revised by Ecology. Rationale: These documents contain the BAS from Ecology and other agency and expert BPJ.

24. Delete, iii of above referenced Section. Rationale: This Section is obsolete by now using the above referenced documents and guidance.

25. Add the following to (3) of the above referenced Section:

After five years have lapsed, a wetland specialist must revisit the site to determine if site conditions have changed to warrant a redelineation or if regulations have changed such that the methodologies are out of date. If the site conditions have changed, a full wetland reconnaissance report shall be required. Use of portions of the prior report may be applicable. If the site conditions have not changed, a letter submitted by a wetland specialist stating said unchanged conditions, shall be sufficient.

26. Delete reference to “the city comprehensive plan Appendix F” in (C) of the above referenced Section and edit sentence. Rationale: All information requirements within the CAO need to be within the contents of the text for clarity and ease of use. ATSI BPJ.

27. Sections (D) and (E) shall be deleted, as indicated below, and rated per the revised rating systems as described in (B) above:

D. Regionally Significant Wetlands. Pursuant to subSection (B)(1)(a)(iii) of this Section, the following wetlands are designated as Category I wetlands:

1. Cannery Pond (West of the State Ferry Terminal);
2. Ship Harbor Interpretive Preserve (East of the State Ferry Terminal), except as to buffer widths which shall be as required for Category II;
3. Any otherwise regulated Category II wetland, as rated under subSection (B)(1)(b) of this Section, that is within the watersheds of Little Cranberry Lake, Whistle Lake and Heart Lake and that drains by natural seasonal surface water connection into those lakes or their upstream associated wetland systems.

E. Locally Significant Wetlands. Pursuant to subSection (B)(1)(b)(iv) of this Section, the following wetlands are designated as Category II wetlands:

1. The wetlands on or adjacent to the Port of Anacortes owned property at the Anacortes Airport except as to buffer widths which shall be as required for Category III. (Ord. 2702 § 3 (part), 2005). Rationale: BAS is the new Ecology Rating system and all wetlands should be rated using said rating system.

28. Add “impacts and mitigation” to end of 17.70.330 paragraph C, 5 (a). Rationale: Ecology guidelines BAS and BPJ.

29. Add and delete the following language to Section 17.70.340 (A). “Activities may only be permitted in a wetland or wetland buffer if the applicant can show that the proposed activity will not degrade the functions and functional performance values of the wetland and other critical areas, *or mitigated so that there is no net*

loss of the functions and values of the impacted wetlands. Rationale: Ecology guidelines and ATSI BPJ.

30. Add the sentence to the end of 17.70.340 F. (1). *All new buildings shall be constructed no less than 10 feet from the outer edge of the regulated buffer.* Rationale: Ecology guidance and BPJ. Buffers are required to protect the functions of a critical area such as a wetland. If a structure is constructed directly adjacent to the prescribed buffer, ultimately the buffer will be impacted, particularly if it is forested.
31. Add 17.70.340 (F) (2) as; *Required standard wetland buffers, based on wetland category are as presented in Tables 17.70.340(1) and 17.70.340(2) below per Hruby, T. 2014. Washington State Wetland Rating System for Western Washington: 2014 Update. (Publication #14-06-029). Olympia, WA: Washington, Department of Ecology,* and then edit numbering accordingly. Rationale: BAS and Ecology guidance.
32. Regarding references to Tables 17.70.340 (1 & 2); edit numbering appropriately. Rationale: numerical edit required.
33. Delete Table 17.70.340 (1) and replace with the Table below as per the above referenced methodology and BAS. Rationale: Ecology guidance and ATSI BPJ.
34. Regarding Table 17.70.340 (1) heading of BUFFER WIDTHS BY CATEGORY PROVIDED THE MEASURES IN TABLE 17.70.320(2) ARE TAKEN to, *Buffer widths by category.* Rationale: Ecology guidance and ATSI BPJ.

Wetland Characteristics	Buffer Widths
Category IV wetlands	
Score for all 3 basic functions is less than 16 points	40 ft.
Category III wetlands	
Moderate level of function for habitat (score for habitat 5-7 points)	110 ft.
Not meeting above characteristic	60 ft.
Category II wetlands	
High level of function for habitat (score for habitat 8-9 points)	225 ft.
Moderate level of function for habitat (score for habitat 5-7 points)	110 ft.
High level of function for water quality improvement and low for habitat (score for water quality 8-9 points; habitat less than 5 points)	75 ft.
Not meeting above characteristic	75 ft.
Category I wetlands	
High level of function for habitat (score for habitat 8-9 points)	225 ft.

Moderate level of function for habitat (score for habitat 5-7 points)	110 ft.
High level of function for water quality improvement (8-9 points) and low for habitat (less than 5 points)	75 ft.
Not meeting above characteristic	75 ft.

35. Within Section 17.70.340 (F) (7), now edited to (8), add “*and/or mitigated*” to end of sentence. Rationale: All buffer impacts require mitigation, or, BJP regarding the impacts a proposed project may, or may not have, on the functions and values of said critical area
36. Within Section 17.70.340 (4) (d), include all wetlands, i.e., Category II and III.
37. Within Section 17.70.340 (G)(2), Follow Ecology guidance per Wetland Guidance for CAO updates (Western Washington Ecology Publication #16.06.001). Rationale: Language to the signs is required to provide consistency and clarity. ATSI BPJ.
38. Within Section 17.70.350, edit as follows: Compensatory mitigation for alterations to wetlands *and/or wetland buffers* shall achieve equivalent or greater hydrological and biologic functions. There shall be no net loss of ecological function and value as a result of any mitigation project, with risks reduced through the use of mitigation ratios, *or a mitigation plan prepared by a wetland specialist that provides for no net loss of wetland functions and values*. Compensatory mitigation plans shall be consistent with the State Department of Ecology Guidance on Wetland Mitigation in Washington State publications #04-06-013c and #04-06-13b *as indicated in the contents of this report* or as revised. Rationale: Ecology guidance and ATSI BPJ.
39. Insert the word “*enhancing*” as follows to 17.70.350 A (3). Rectifying the impact by repairing, rehabilitating, *enhancing* or restoring the affected environment. Rationale: follows Ecology guidance documents.
40. Within Section 17.70.350 add (B) (3) to state: *An in-lieu fee program shall be established by the City of Anacortes*. Rationale. Although there is no in-lieu fee program set up at this time, a local agency such as the city, can create one. Ecology allows for such a program and is useful for minor wetland impacts. Suggested areas are Smileys Bottom and Cannery Pond.
41. Within Section 17.70.350 (E) add and delete as follows:
 - E. Mitigation Timing. Mitigation *or Projects* shall be completed with an approved monitoring and maintenance *mitigation* plan prior to activities that will disturb wetlands *and/or their buffers*. In all other cases, mitigation shall be completed immediately following disturbance and prior to use or occupancy of the activity or development adjacent to the wetlands. Construction of mitigation projects shall be timed to reduce impacts to existing fisheries, wildlife, and flora. *A bond shall be provided to the City of Anacortes at 150% of the estimated cost to fully mitigate for any wetland and/or wetland buffer disturbance. The bond amount shall be determined by a PWS or designee. The bond shall be released incrementally as each portion of the mitigation has been successfully completed, such as the construction portion may be released upon completion of the construction while the maintenance portion shall not be released until the*

- end of the monitoring period.* Rationale: Bonding assures compliance and is a typical requirement of many jurisdictions.
42. Within Section 17.70.350 (F) (1), first sentence shall be edited to “Acreage Replacement Ratio *Guidelines*.” Also add, “*or in lieu fee program*” to end of third sentence and replace “should” with *shall*. Rationale: These mitigation ratio’s follow Ecology guidance found in Ecology Publication #16-06-001 and should be included in CAO)
43. Within Section 17.70.350 (F) add the following:
3. *Decreased Replacement Ratios.*
- a. *Wetland replacement ratios may be decreased when in accordance with the requirements or allowances for a wetland mitigation bank or in-lieu fee program.* Rationale: If a mitigation bank or in-lieu programs are set up, mitigation ratio’s are set within said programs, therefore use of the previous compensatory mitigation ratio’s is moot.
44. Within Section 17.70.350 (G) (3) add:
- Ecology ratio guidance may also be used to replace the functions and values of the impacted wetlands and wetland buffers. Buffer impacts such as “Paper Fill” may also be factored into a mitigation plan.* Rationale: As stated above in D (3) above, this statement is intended to allow Ecology guidance and requirements to be used. Also, the use of, and, requirements for “paper fill” when a project proposes to reduce buffers to less than the prescribed distances within the contents of this ordinance, will require compensation at 50% of the ratio in F (1) of this Section.
45. Within Section 17.70.350 (H) (4) add:
- An In lieu fee program, if available, may be used at the discretion of the zoning administrator for compensatory mitigation.* Rationale: Allows flexibility for compensatory mitigation and the city to better direct where mitigation may occur, such as enhancement of Smileys Bottom or Cannery Pond.
46. Generally, when the term “wetland” is used within the text, add “wetland buffer.” Rationale: The term wetland buffer is not listed in numerous places within the 2005 CAO, and requires protection and mitigation when disturbances are proposed.
47. Within Section 17.70.360.C Access roads and utilities serving the proposed subdivision may be permitted with the wetland and associated buffers if the *applicant and the city Planning Director* determines that no other feasible alternative exists and when *the project as proposed* is consistent with *the mitigation requirements* of this title.
48. Add to the last of paragraph 17.70.370, ...subject to any or all of the terms and provisions *and as they pertain to mitigation requirements* of this chapter.
49. Add to 17.70.380 D. Education, scientific research, and nature trails. *Nature trails should not be permitted in wetlands except for minor crossings that minimize impacts. Generally, and where practical, trails should be located in the outer 25 % of the wetland buffer and avoid impacting any significant trees.*
50. In 17.70.390, Special permit uses, add “*Activities specified in 17.70.380 do not exclude the permit requirements from other agencies. Compliance with the provisions of this Title does not constitute compliance with other federal, state,*

and local regulations and permit requirements that may be required (for example, Shoreline Substantial Development Permits, HPA permits, Army Corps of Engineers Section 404 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. Rationale: Generally all wetland impacts require notification to the state and federal agencies.

51. Section 17.70.400 Conditional use permits; allow the planning department or zoning administrator the flexibility to make the determination if a proposed project conforms with the revised CAO, or require a CUP. Rationale: Reduce time and economic resources (both public and private) in the permitting process. Add to “...regulated activity” *per this chapter...* Rationale: Clarify meaning of “regulated activity”.
52. Section 17.70.400, establish a fee for processing applications. Rationale: To provide clarity regarding fee structure.
53. Revise 17.70.400 – 420... to be consistent with the CUP process with Title 19 and be consistent with other permit timeframes. Rationale: To provide consistency.
54. Regarding 17.70.420. Consider revising language to reflect to not require a CUP. Decisions may be made within the planning department or by the zoning administrator. Rationale: Internal decisions (the planning department or review committee) needs to discuss the applicability of this Section. See comment 53.
55. Add to 17.70.420, (C) ...special concern in *the City of Anacortes and ...* Rationale: To be inclusive of local species of concern.
56. Add to 17.70.430 (G) *A compensatory mitigation plan has been submitted and accepted by the City of Anacortes, and...* Rationale: Allows flexibility in this CAO for wetland and wetland buffer disturbances when impacts are unavoidable or minimized.
57. Provide better guidance for Section 17.70.440. Rationale: Internal decisions (the planning department or review committee) needs to discuss the applicability of this Section and provide guidance to define costs, existing technology, infrastructure, and logistics.
58. Consider, within 17.70.450 and .460, allowing the planning department or zoning administrator to make the requirements as listed. Rationale: Internal decisions (the planning department or review committee) needs to discuss the applicability of this Section.
59. Throughout Section 17.70.470 add *enhancement, compensatory mitigation* accordingly to the first paragraph. Rationale: To provide consistency and flexibility throughout the contents of this chapter.
60. Throughout Section 17.70.480 replace restoration or creation with *compensatory mitigation* and add; *Wetland mitigation banks and in lieu fee’s shall be considered.* Rationale: The term “compensatory mitigation” covers the latter two words, i.e., “restoration and creation”.

Insert “*Wetland mitigation banks and in-lieu fee’s shall be considered*” to the end of the first paragraph. Rationale: To provide consistency within the contents of this chapter.

61. In 17.70.520 (B) delete; “Wetland does not score twenty points or greater for habitat in the 2004 Western Washington Rating System; and Rationale: is not required with the updated rating requirements.
62. Delete Section 17.70.530 “Adaptive Management” and require the applicant, as stated in the migration requirements Section, to perform the monitoring per Section 17.70.320 (C)(6). Add “Adaptive Management” to the definitions Section. Rationale: Typically, a jurisdiction, such as the city, does not perform the actual monitoring and said monitoring is a requirement of the proposed compensatory mitigation plan. Also, an updated definition of adaptive management needs to be included within the definitions Section to comply with BAS.
63. Regarding Section 17.70.540 (3) (b); include said habitats, i.e., ACFL lands and the March Point Heronry on the critical areas map. Rationale: ATSI recommends updating all critical areas map to reflect known critical areas, i.e., those observed by local professionals (as mapped by a city consultant) and those mapped by other agencies such as the National Wetland Inventory and the WDFW priority species and habitats map. Said maps are BAS.
64. Regarding 17.70.540;(7) (b)(ii); Delete; Every year the building department will commission an evaluation by a qualified riparian scientist as to whether or not on a cumulative basis ecological function and value has been maintained on all sites subject to building permit since January 1, 2004. If at any time this standard is not achieved the city shall either adopt a regulatory scheme to ensure that the standard is met or actually restore buffers to ensure that the standard is met. And; in subSection (iii) delete three and add *five year performance...*and delete A guidance document shall be provided by the city planning department. Rationale: As stated in other sections of this report, i.e., mitigation requirements should be a part of the compensatory mitigation report requirements when critical areas and/or their buffers are impacted.
65. In 17.70.540 (7) (c) delete 10 foot buffer and add *25 foot buffer*. Add no net loss of function and value,... (*off site and in the same watershed compensatory mitigation is acceptable*). Add ditches to definitions Section. Rationale: A 10 foot buffer does not protect the functions and values of a biological critical area; ATSI BPJ. Regarding ditches, a through definition of man-made ditches and ditched streams and wetlands needs to be included in this chapter.
66. Regarding Section 17.70.550 (B) add (4) “*Habitats that have a primary association for species of concern, listed species, and/or unique habitats that are listed in this ordinance or state listed*”. Rationale: These habitats are protected and therefore must be included within all critical area reports.
67. Regarding 17.70.560 (D)(2) add such as, *rocky balds, mature forests, significant snags...*Rationale: These habitats may be protected and therefore must be included within all critical area reports.
68. Regarding 17.70.560 (E), and other locations, delete upstream and downstream and edit to *upgradient* and *downgradient*. Rationale: Provides greater flexibility in the description of flowing water whether surface or subsurface.

69. Regarding 17.70.560 (G)(1), edit...sensitivity of the *species or species habitat*...
Add: * *For colony nesting birds or raptor nests, herons have been known to abandon a heronry, or, a raptor nest tree may blow down. Therefore if the protected species or species habitat is no longer present, the protective covenant may be removed after five years.* Rationale: This inclusion is self explanatory and has occurred with the city limits.
70. Regarding 17.70.570 (A), add *or as applicable in the event the law has changed*, to the end of said subSection. Rationale: Provides greater protection or removes protection as applicable by current law.
71. Regarding 17.70.570 (C), add the following at the end of said Section. Rationale: This table brings this CAO up to current WDFW Guidance.

The table below replaces the previous CAO “stream typing system” and comes from WAC 222.16.030. Said WAC should be referenced for clarification of Fish bearing, Non-fish bearing perennial and Non-fish bearing seasonal streams.

<i>Riparian Habitat Areas</i>	
<i>Stream Type</i>	<i>Recommended RHA Widths per WDFW</i>
<i>Perennial or fish bearing streams, 5—20 feet wide</i>	<i>200 feet</i>
<i>Other perennial or fish bearing streams, < 5 feet wide</i>	<i>50 feet</i>
<i>Intermittent/seasonal streams and washes with low mass wasting potential</i>	<i>50 feet</i>
<i>Intermittent streams and washes with high mass wasting potential</i>	<i>225 feet</i>

72. Regarding 17.70.570 (5) delete references to stream Types 1 through 5 and replace with those in the table of item 67. Rationale: Provides consistency with the above referenced table.
73. Regarding 17.70.570 (D)(7) add ACFL buffer...*or as applicable to protect the integrity of vegetation on AFCL lands* and delete using all available incentives. Rationale: Brings consistency within the contents of this CAO.
74. Regarding 17.70.580 (A)(2); delete reference to Puget Sound and insert *Salish Sea*, and, delete the biologist/riparian plant specialist and replace *with qualified professional*; Rationale: Brings consistency with current parlance and consistency within this CAO, respectively.

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Geologically Hazardous Areas
Frequently Flooded Areas

for
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July 26, 2017



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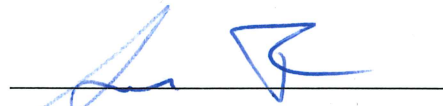
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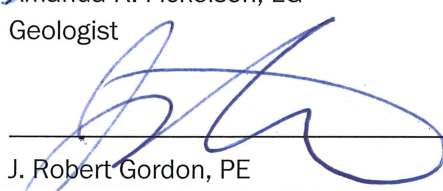
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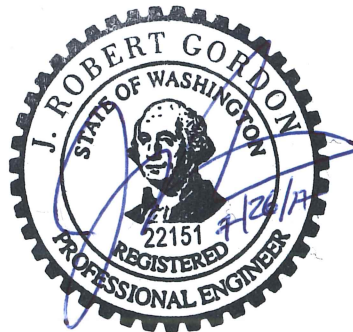


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APPENDICES

Appendix A. "City of Anacortes Critical Areas Ordinance Update: Frequently Flooded Areas," Memorandum by Coastal Geologic Services, Inc. dated January 19, 2017.

INTRODUCTION

The City of Anacortes (City) adopted an updated Comprehensive Plan in 2016 and is in the process of updating its Critical Areas Ordinance (CAO) as required by the Growth Management Act (GMA, Chapter 36.70A Revised Code of Washington [RCW]). We understand that the CAO update will be part of a greater code update that is currently underway by the City planning staff.

The City first adopted a CAO in 1992. The last major update to the critical areas regulations was completed in 2005. The GMA (Washington Administrative Code [WAC] 365-195-485) requires the use of “best available science (BAS) in developing policies and development regulations to protect the functions and values of critical areas.” This report summarizes the results of our BAS review, presents discussion and conclusions related to potential updates to three specific critical areas regulations: Critical Aquifer Recharge Areas (CARAs), Geologically Hazardous Areas (GHAs), and Frequently Flooded Areas (FFAs).

Our services for this review are described in our scope and fee estimate dated September 30, 2016 and City Contract 16-082-IDS-001. Our services were authorized by the City on October 27, 2016. The services were completed in collaboration with the City planning staff. GeoEngineers also subcontracted Coastal Geologic Services (CGS) to provide additional support on the frequently flooded areas BAS, and potential updates. GeoEngineers also provided review comments to the City while the update language for the CAO was being drafted.

PURPOSE AND BACKGROUND

The purpose of this report is to provide technical evaluation, discussion and recommendations to the City staff for purposes of updating the related portions of the CAO with regard to current BAS for the three specific critical areas. Based on discussions with City planning staff, the current CAO as related to CARAs, GHAs, and FFAs serves the general public and City administration/code responsibilities reasonably well and therefore the functional changes do not need to be extensive. A consideration for updating the GHA and FFA critical areas since 2005 is how to consider potential impacts of climate change and sea level rise into new policies and development regulations.

According to the Washington State Office of Community Development (OCD), BAS is defined as scientific information applicable to the critical area prepared by local, state, or federal natural resource agencies, or qualified scientific professionals, that is consistent with criteria established in WAC 365-195-900 through WAC 365-195-925. The applicability of BAS and even particular critical area regulations are unique to each city and county depending on many factors including: location; geography; hydrologic, geologic and hydrogeologic conditions; presence/absences and type of water bodies. GeoEngineers completed our review in accordance with the criteria specified in the referenced WAC sections while considering our understanding of the applicable attributes for the City.

BAS must be involved in developing the policies and regulations related to the critical area; however, local jurisdictions also have the opportunity and responsibility to include context where proposed development regulations consider relevant mitigation strategies for impacts to, and possible impacts from, critical areas. These considerations are generally incorporated into critical area regulations by:

- using BAS in developing policies and development regulations to protect functions and values of critical areas, while recognizing the agency also has a responsibility to protect lives and property within the regulatory framework;
- requiring a valid scientific process to evaluate the effects of the policies and regulations; and consider how a valid scientific process can be incorporated in submittals related to the critical areas when assessing possible impacts to critical areas from proposed development activities; and
- incorporating non-science based decisions with discussion of supporting information, rationale and potential risks to functions and values of critical areas.

BAS reviewed for this update of the City CAO in the three critical areas of interest are described in separate sections of this report. The FFAs discussion is introduced in the text, but the code review, BAS science review, and potential actions are presented in the CGS report which is included as Appendix A.

BAS REVIEW FOR CRITICAL AQUIFER RECHARGE AREAS

A CARA is defined by the GMA as “areas with a critical recharging effect on aquifers used for potable water.” WAC 365-190-030 uses the following definition:

“Areas with critical recharging effect on aquifers used for potable water, including areas where an aquifer that is a source of drinking water is vulnerable to contamination that would affect the potability of the water, or is susceptible to reduced recharge.”

CARAs are based on the known or suspected vulnerability of aquifer(s) within a designated area (Ecology 2005). Vulnerability is the combined effect of hydrogeological susceptibility to contamination and the contamination loading potential. Vulnerability represents the risk that an aquifer could become contaminated by potential sources of pollution reference. CARAs need to be protected to provide adequate recharge and water quality protection of sources used for drinking water. Areas underlain by highly-permeable soils such as sand and gravel have higher susceptibility to contamination than areas underlain by low-permeable soils such as glacial till or bedrock. The specific methodology to classify the CARAs is left to the local jurisdiction (Ecology 2005).

In response to the 1986 Amendments to Section 1428 of the federal Safe Drinking Water Act, Chapter 246-290 WAC was modified in July 1994 to include mandatory wellhead protection measures for Group A public water systems (water systems having 15 or more connections or serving 25 or more persons). State guidelines require that Wellhead Protection Areas (WHPAs) be based primarily on travel-time-related capture zones. Travel-time-related capture zones are estimates of the region surrounding a well that contributes flow to a well within a specified time, typically 1, 5 or 10 years.

CARAs are developed using available data sets of hydrogeologic, geologic and hydrologic information. These data sets have a hierarchy of applicability to CARAs based on the level of knowledge of the aquifers and what information is available. Typically, CARAs are based on the mapped extent of the source aquifers and WHPAs, which are associated with locations of wells serving public water systems (Groups A and B) and wells that serve one or two households.

City Water Supply

A significant consideration for the City is the various water supply systems currently used within the existing City limits and the water supply system to be used for future development within the City limits. The present potable water-supply for a majority of the City residents is their municipal supply system, and the source is surface water from the Skagit River. The surface water is diverted from the river near Mount Vernon and treated at a water treatment plant located about 12 miles from the city and outside of the City limits. The water is transmitted to a city reservoir and distributed within the city (City of Anacortes 2015). Based on conversations with the City planning department, it is the intention of the City to require all new development within City limits to use their municipal system for potable water supply.

Based on our review and research, there are no known Group A or B water systems within City limits that are served by groundwater. However, there are several residential parcels that contain private water-supply wells within the city limits and appear to still be using groundwater as their drinking water source. Thus, the primary purpose of establishing CARAs for the City is the need to preserve aquifer resources for the existing water supply wells and potential future drinking water supplies.

Literature Review

We reviewed selected documents cited in the “CARA References” section of this document. This included a review of documents contained on the OCD website and technical reports/documents discovered during independent research by GeoEngineers. We reviewed selected CARA code regulations including Skagit County Code for consistency. The recently updated code of the City of Everett (2015) has no designated CARAs. The code of the City of Port Townsend was reviewed as an example of a city with surface water as the drinking water source. The City of Shoreline (2015) is an example of a jurisdiction that determined that there were no identified CARAs within the city limits. These references and our review of BAS references provide a basis for our recommended revisions to the City CARA portion of the CAO.

Best Available Science Evaluation of Existing Ordinance

It appears that the existing ordinance generally meets the current BAS for CARA, based on our literature review and professional experience, with the exceptions noted below.

The City supplies public water with a municipal system from a surface water source and intends to require connecting to the City municipal water system for all future development. The need for CARAs is to preserve recharge and protect against contaminants in areas overlying the drinking water sources for private water-supply wells within and near the existing and future City limits. There are no Group A or B public water systems within the city limits of Anacortes. A review of Washington Department of Health’s Source Water Assessment Program maps (DOH 2016) indicate that Group A and B water systems located near the city limits have WHPAs that appear to be delineated using fixed-radius WHPAs based on limited aquifer information. The coverage areas of these WHPAs are almost entirely outside the city limits, with just two fixed-radius WHPAs associated with Group B systems overlapping the city limits. One WHPA for the Goss Water System is located west of the city limits near Havekost Road and the other is for the Buker Turner Water System southwest of the city limits near Lake Erie.

Classification of CARAs in the City are in general accordance with our technical and regulatory experience, information contained within codes from other sources, and the BAS information reviewed. The current City code 17.70.090(A)(1) states that Category I includes areas served by groundwater, with designations of:

Sole Source Aquifer Areas; closed or low-flow stream watersheds; “areas identified by the city or county as sea water intrusion areas;” WHPAs; groundwater contribution areas; or recharge areas for Group A and B wells or a group of wells on plats. Category II includes areas in the City not identified as Category I areas.

The present mapping of CARAs in the City is not in general accordance with our technical and regulatory experience, information contained within codes from other sources, and the BAS information reviewed. The current CARA map of the City was developed in 1991 (Jones & Stokes Associates 1991) and presents a “Sensitive Area Inventory.” Areas are shown and designated as “High,” “Low,” “Variable” and “Bedrock.” The areas appear to be based on the general permeability of surface soils. For example, the “High” areas correspond to mapped soils that have high permeability and provide relatively rapid recharge to groundwater. Areas of bedrock are assumed to be low permeability. This map does not correspond to the current City code that designates CARAs as Categories I or II.

Skagit County’s CARA ordinance includes the mapping of areas within ½ mile of the shoreline that are susceptible to potential sea water intrusion. Because the City code references Skagit County’s “Interim” Seawater Intrusion Policy, these areas would be classified as Category I areas in the City and should be shown on the City’s CARA map.

Groundwater Wells and Source Aquifers

We conducted a BAS review of source aquifers and groundwater supply in the City limits and immediately adjacent area. There are no known published studies related to the aquifers or hydrogeology of Fidalgo Island or City of Anacortes. The United States Geologic Survey (USGS) was contacted to inquire if there were current studies in the area, but none are ongoing that pertain to City hydrogeology (Sue Kahle, USGS personal communication November 15, 2016).

We reviewed the well logs available on Washington Department of Ecology’s (Ecology’s) online Well Log Viewer database. Location information reported on the well logs are often generalized, in error, and/or unreliable. We cross-referenced the well owner, parcel ID and location information provided on the well log with parcel ownership information on the Skagit County Assessor’s Parcel Search database. Based on this information, we developed Table 1 below showing the number of wells within each section overlapping the City boundaries, and the ranges of depths and tested withdrawal rates.

TABLE 1. WATER-SUPPLY WELLS LOCATED WITHIN THE CITY LIMITS BASED ON DEPARTMENT OF ECOLOGY’S WELL LOG VIEWER DATABASE.

Township/Range-Section	Total Number of Wells	Range of Drilled Depths (feet)	Tested Rates (gallons per minute)
T34N/R01E-01	1	35-180	2.5
T34N/R01E-12	2	50-305	2-18
T35N/R01E-25	23	42-173	1-50
T35N/R01E-26	7	197-300	5-20
T35N/R01E-36	2	12-224	0.5-15
T35N/R02E-30	5	30-160	2-6
T35N/R02E-31	8	30-160	0-10
Totals	48	12-386	0-50

Our review of the well log database indicated that there are 48 water-supply wells located within the city limits. Note that some wells are drilled without a record appearing in Ecology's database; while it could be argued that this should be considered a minimum number of wells, it is also possible that some of these wells could be no longer in use or decommissioned. A review of the City's GIS data from the Public Works Department indicates that there are 38 parcels within the city limits that contain a well. We could only cross-reference five well locations that were included in both datasets. Thus, there could be greater than 38 wells within the city limits.

Conclusions and Recommendations

In our opinion, the City code for CARAs is in general accordance with our technical and regulatory experience, information contained within codes from other sources and the limited available BAS information. Based on our review and research, we recommend the following revisions to Article III – Aquifer Recharge Areas in the City of Anacortes Code Section 17.70, to be accomplished within the framework of other overall City code revisions.

General

- The City and Skagit County codes have similar language but are generally organized differently. For example, for CARA category designations, the county code provides a “bulleted” list of what each of the category areas include, whereas the City's code provides a similar list as one paragraph. However, it is our opinion that the City's code need not be reorganized unless the intent is to more closely follow the County's code or City planning staff feel that this would provide more clarity.
- Section 17.70.120(B) – Geologists and hydrogeologist are now licensed in the state of Washington. Thus, we suggest that the following language:
 - “...or by a geologist or hydrogeologist who earns his or her livelihood from the field of geology and/or hydrogeology and has received a degree in geological science from an accredited four-year institution of higher education and who has relevant training and experience analyzing geologic, hydrologic and groundwater flow systems.”

be replaced by:

- “or by a licensed hydrogeologist or a licensed geologist who has relevant training and experience analyzing geologic, hydrologic and groundwater flow systems.”
- We evaluated CARA related codes for the City of Everett, City of Port Townsend, and City of Shoreline, which might have some similar attributes as coastal cities. We conclude that the approaches used for CARAs in their codes are not suitable for the City.

Code References

We have found multiple references to codes within the current City of Anacortes Code Section 17.70 that are out of date with the referenced code. We recommend that the following changes be made when final code changes are made:

- Section 17.70.090(A)(1) of the City code refers to WAC 246-290-135(4) pertaining to “groundwater contribution area” for Group A water systems. There is no “groundwater contribution area” in the referenced WAC. We recommend removing this reference to WAC 246-290-135(4).

- Section 17.70.090(A)(1) of the City code refers to WAC 246-291-100(2)(e). There is no such code. We believe the intent was to refer to “groundwater contribution area” for Group B water systems as mentioned in WAC 246-291-125(3)(d)(ii). Therefore, we recommend changing the reference to WAC 246-291-125(3)(d)(ii).
- Section 17.70.090(A)(4) of the City code refers to WAC 365-190-030(2). This refers to the definition of “City.” We believe the intent was to refer to the definition of “Critical Areas” as provided in WAC 365-190-030(4). Therefore, we recommend changing the reference to WAC 365-190-030(4).
- Section 17.70.130(C) of the City code refers to the nitrate loading point of compliance Skagit County Code SCC 14.24.340(2)(m). The referenced code pertains to “Recording of Mitigation Plan Summaries.” We believe the intent was to instead refer to SCC 14.24.330(3)(m), where the “point of compliance” for a nitrate loading assessment is described. Therefore, we recommend changing the reference to SCC 14.24.330(3)(m).

Maps

The mapping of CARAs in the City is not in general accordance with our technical and regulatory experience, information contained within codes from other sources and the BAS information reviewed. We recommend that the “aquifer recharge” maps identified in Section 17.70.090(A)(1) be updated and renamed as the CARA map. We recommend the following updates be made to the CARA map:

- The CARA map should show delineated areas for Categories I and II, not High, Variable, Low and Bedrock.
- Include areas that are mapped with high permeability soils as Category I CARAs. These are soils have moderate to rapid permeability (>2 inches/hour) as listed in Table 14 of the Soil Survey of Skagit County (SCS 1989).
- Include the area within ½ mile of the shoreline as Category I to match the Skagit County maps and to correlate to the categorization within the city’s code.
- Include areas that contain groundwater wells within the city limits as Category I. Parcels have been mapped and shown on GIS database maps (citation of the source of those maps).
- All areas outside of the Category I areas listed above should be mapped as Category II.

BAS REVIEW FOR GEOLOGICALLY HAZARDOUS AREAS

GHAs are defined by WAC 365-190-030:

“Geologically hazardous areas are areas that because of their susceptibility to erosion, sliding, earthquake, or other geological events, are not suited to siting commercial, residential, or industrial development consistent with public health or safety concerns.”

GHAs as further defined by WAC 365-190-030 include erosion hazard areas, landslide hazard areas, seismic hazard areas (which include typical volcanic hazards and tsunamis), mine hazards, and volcanic hazards.

The WAC recommends that cities or counties should classify these hazards as “known or suspected risks,” “no risk,” or “risk unknown.” Based on our experience, review, and research:

- erosion, landslide, and seismic hazards exist within the City and immediately surrounding area and evaluating potential updates is appropriate;
- we did not identify any coal mine hazards in published references for the City and immediate surrounding area. The City code has a more general reference to “mine hazard areas.” However, we did find published information related to two historical mineral mines in the City limits;
- we did not identify any significant risk of volcanic hazards in published references for the City and immediate surrounding area, other than airborne particulate impacts from an eruption which is the case for most if not all Washington jurisdictions; and
- the “other” categories of geohazards relevant to the City include tsunamis, and potential impacts associated with climate change and sea level rise. The potential impacts associated with climate change and sea level rise are also discussed in the FFA critical area discussion.

Literature Review

We reviewed selected documents cited in the “GHA References” section of this document. This included a review of documents contained on the OCD website and technical reports/documents discovered during independent research by GeoEngineers. We also reviewed selected GHA code regulations that were updated recently including the City of Edmonds (2016), City of Everett (2015), and the City of Shoreline (2015). We also reviewed the GHA code regulations for City of Seattle, King, Island and Whatcom Counties for relevant opportunities for code changes. These references and our review of BAS references provide a basis for our recommended revisions to the City GHA portion of the CAO.

BAS Evaluation of Existing Ordinance

Erosion Hazard Areas

It appears that the existing ordinance for erosion hazard areas generally meets the current BAS, based on our literature review and professional experience, as discussed and with the exceptions noted below.

Current city code refers to WAC 365-190-080(4)(c). The code should reference WAC 365-190-120(5).

The City code designates: “Erosion hazard areas are at least those areas identified by the United States Department of Agriculture's Natural Resources Conservation Service as having a "moderate to severe," "severe," or "very severe" rill and inter-rill erosion hazard. See WAC 365-190-080(4)(c).” According to WAC 365-190-120(5), “Erosion hazard areas include areas likely to become unstable, such as bluffs, steep slopes, and areas with unconsolidated soils.” The WAC also refers to Department of Ecology Coastal Zone Atlas (CZA) for this information. WAC 365-190-030 (Definitions) states “Erosion hazard areas are those areas containing soils which, according to USDA NRCSS, may experience significant erosion. Erosion hazard areas should also include coastal erosion-prone areas and channel migration zones.”

Activities in and near designated erosion hazard areas are generally allowed if specific development or performance standards, as described within an approved critical areas report, are followed. The standards generally include the time of year disturbance is allowed, limits of allowable disturbed area, and required plans (such as a Temporary Erosion Control Plan) to minimize possible impacts from the disturbance and

possible monitoring or mitigation for the disturbance. These elements appear to be present in the current ordinance.

Landslide Hazard Areas

It appears that the existing ordinance for landslide hazard areas generally meets the current BAS, based on our literature review and professional experience, as discussed and with the exceptions noted below.

Current city code refers to WAC 365-190-080(4)(d)(i). The code should reference WAC 365-190-120(6).

Landslide activity within glacial and post-glacial deposits in the Puget Sound Region is a component of a continuous local and regional landscape evolution. Typically, landslides occur in marginally stable areas, oversteepened slopes, where landslides have previously occurred, in areas that have been recently modified by human activities or natural processes, and along steep bluffs. The City and surrounding area also have some steep/vertical bedrock slopes that could be considered within landslide regulations. Based on our experience, landslides in the Puget Sound Area generally advance upslope dimensionally less than the vertical height of the pre-existing landslide or slope feature. However, landslides developing on weak, very wet soils can propagate upslope and downslope more than the vertical height of the feature. Also, the rate of landslide growth or movement varies widely depending on a variety of factors.

LiDAR Mapping and Runout Considerations

The existing hazard maps do not include known or suspected landslide areas based on recent LiDAR mapping data. LiDAR mapping represents the current BAS with respect to identifying and mapping recent and historic landslides and should be incorporated into the current hazard maps. In addition, publicly available historic satellite imagery should be used to evaluate potential current or historic landslide areas identified by LiDAR. We recommend that the existing city inventory be updated using the stated BAS.

Landslide runout is a current focus area of study since the 2013 Ledgewood landslide in Island County and the 2014 Oso landslide in Snohomish County. We reviewed technical documents that describe both empirical and analytical methods to predict the extent of landslide runout. The studies appear to be at a scale that is not generally applicable to the typical small-scale landslides that are more likely within the City. LiDAR mapping and evaluation in the Oso area provided the best indicator of potential landslide runout, as several large historic landslides were mapped, several of which had runout distances equal to or greater than the Oso event. We recommend that LiDAR data be reviewed to identify any areas within the City that appear to be associated with this type of landslide event. Based on our BAS review and our knowledge and experience working in Anacortes, we do not believe that this type of event is likely within the City limits; however, run-out potential should be evaluated on an individual application submittal basis. The current code includes this in the hazards analysis section 17.70.240(2)(f).

Buffers and Setbacks

Development standards for landslide areas, including buffer and/or building setback requirements, depend largely on the type of proposed development, the size of the landslide hazard area, the potential landslide type, frequency of potential landslide activity, underlying soil and groundwater conditions, and in particular, the likely consequences of landslide activity. It is our opinion that it is not realistic to incorporate all of these criteria within a CAO, but it is appropriate to require that all relevant factors specific to a site be addressed in critical area reports to be completed by a licensed engineer with geotechnical background, or a licensed geologist or engineering geologist with suitable background.

CAO regulations typically include minimum buffers and/or setbacks and allow disturbance to landslide hazard areas only if a site-specific investigation is completed, analysis indicates that the proposed development will not affect or be affected by the landslide hazard, and specific development or performance standards/recommendations are followed. There is a myriad of ways for landslide/steep slope codes to address this consideration:

- The City CAO (17.70.260) says a buffer shall be established from all edges of the landslide hazard areas. The size of the buffer will be determined by the planning director based on review of a critical areas report completed by a qualified professional. The minimum buffer will be equal to the slope height or 50 feet, but can be reduced to 10 feet by the planning director if a qualified professional can demonstrate that the reduction is adequate to protect the proposed development and adjacent development. The buffer may also be increased by the planning director as necessary.
- The International Building Code (IBC 2015) requires building setbacks from the top of descending slopes equal to one-third of the slope height or 40 feet, whichever is smaller, and from the bottom of the slope equal to one-half of the slope height or 15 feet, whichever is smaller. The IBC setback considerations are provided for slopes only and do not provide provisions for landslide areas. Potential runout distances for landslide material at the bottom of slopes are not specifically discussed in the IBC or in the current OCD documents.
- Island County CAO requires: a 50-foot setback or greater from a slope that is more than 10 feet but no more than 30 feet in height; 75-foot setback or greater from a slope that is more than 30 feet but no more than 50 feet in height; 100-foot setback or greater from a slope that is more than 50 feet in height.
- Skagit County CAO requires a minimum buffer of 30 feet from top, toe, and edges of all landslide and erosion hazards; for areas with a vertical relief greater than 50 feet, the minimum buffer is increased to 50 feet.
- City of Seattle CAO requires a minimum 15-foot buffer from top/toe unless director determines otherwise.
- City of Everett requires buffer be specified in geohazard report; if not stated, then will be based on standards in the IBC.
- City of Shoreline CAO recently updated-very high-risk landslide areas 50 feet from edges, can be reduced based on assessment, but minimum is 15 feet.
- Whatcom County CAO requires setbacks to be established by a qualified professional with no specific minimum requirements. However, the buffer shall include woody vegetation to stabilize the soil, or the technical administrator has the authority to require vegetation or other measures to improve slope stability and prevent erosion.
 - The Whatcom County code also identifies potential landslide areas in rock areas as those “slopes that are parallel or subparallel to planes of weakness (such a bedding planes, joint systems, and fault planes) in subsurface materials” and “slopes having gradients steeper than 80 percent subject to rock fall during seismic shaking”.

Seismic Hazard Areas

It appears that the existing ordinance for seismic hazard areas generally meets the current BAS, based on our literature review and professional experience, as discussed and with the exceptions noted below.

Current city code refers to WAC 365-190-080(4)(e). The code should reference WAC 365-190-120(7).

Designation/definition of seismic hazard areas in the City appears to be in general accordance with our technical and regulatory experience, information contained within codes from other sources and the limited available BAS information. The WAC lists tsunami hazard within the seismic hazard areas, while the City includes it as a separate section.

The City currently allows certain types of development within seismic hazard areas if specific performance standards are followed. The specific standards generally include an evaluation of the type and magnitude of potential seismic hazard and mitigation to reduce the seismic risk through engineering design. The engineering design must be done in accordance with the most recent version of IBC, which is typical of all Puget Sound jurisdictions. This represents the BAS in our opinion. Some codes also reference that public roads, bridges, utilities and trails be designed in accordance with most recent version of the American Association of State Highway and Transportation Officials (AASHTO) Manual.

Classification and mapping of seismic hazard areas in the City are in general accordance with our technical and regulatory experience, information contained within codes from other sources and the BAS information reviewed. We recommend that the maps identified in Section 17.70.210 be updated to be more specific. The current code lists USGS Seismic hazard maps and Washington Department of Natural Resources (WDNR) seismic hazard maps. We recommend that the map list be updated to include the Liquefaction Susceptibility and Site Class Maps by county completed by WDNR.

Mine Hazard Areas

The designation/definition for mine hazard areas meets the current BAS for mine hazard Areas, based on our literature review and professional experience. According to the WAC 365-190-120(8)(b), “mine hazard areas are defined as those areas underlain by, adjacent to, or affected by mine workings such as adits, gangways, tunnels, drifts, or air shafts. Factors which should be considered include: proximity to development, depth from ground surface to the mine working, and geologic material.”

Current city code refers to WAC 365-190-080(4)(f)(ii). The code should reference WAC 365-190-120(8)(b).

Our research did not identify coal mine hazards in the Anacortes area. Our research identified two silver-copper-gold mines within city limits, Anacopper Mine and the Stephens (Fidalgo) Mine, but no additional information was found related to previous mining activities.

Volcanic Hazard Areas

The designation/definition for volcanic hazard areas meets the current BAS for volcanic hazard areas, based on our literature review and professional experience. The City is not at risk of various hazard flows, avalanche, lahars or related flooding from volcanic activity of the nearest peaks, which include Mount Baker or Glacier Peak (the two closest volcanoes) according to USGS maps for volcanic hazards associated with Mount Baker and Glacier Peak.

Current city code refers to WAC 365-190-080(4)(f)(i). The code should reference WAC 365-190-120(8)(a).

Tsunami Hazard Areas

It appears that the existing ordinance meets the current BAS for tsunami hazard areas, based on our literature review and professional experience. The WAC includes tsunami hazards within the seismic hazards section (WAC 365-190-120(7)). Other codes reviewed include it in the flood hazard section or address it separately. Based on review of tsunami hazard maps, the most significant tsunami hazard area in the City is south and west of Washington Park. Other smaller areas exist along the shoreline of Guemes Channel and Fidalgo Bay.

Current city code refers to WAC 365-190-080(3)(d). The code should reference WAC 365-190-120(7).

Climate Change/Sea Level Rise

Climate change and sea level rise must be considered in CAO updates by the WAC. However, the science is rapidly changing at this time and there is no consensus on how to incorporate into relevant codes in Puget Sound. We understand that the City is going to address climate change and sea level rise during the shoreline master program update planned in 2018. BAS review indicates that the potential impacts associated with climate change include more extensive coastal flooding during storms, period tidal flooding, and increasing coastal erosion. The current BAS related to climate change and sea level rise is discussed in more detail in the FFAs portion of the CAO, where the impacts are more obvious. While most codes are not including climate change and sea level rise in the GHA section of their code, increasing bluff marine erosion and/or impacts to developments in particularly vulnerable areas such as Skyline Marina may warrant some articulation of risk and potential mitigation.

Conclusions and Recommendations

We understand that “Section 17.70.220 – Activities allowed in the geologically hazardous areas” will be changed in the new code update. The revisions should more clearly define the development that can occur within these areas and subject to specific code requirements.

Erosion Hazards

In our opinion, the City code for erosion hazard areas is in general accordance with our technical and regulatory experience, information contained within codes from other sources, and the limited available BAS information.

The definition could be changed in accordance with the previous discussion, which would include coastal erosion prone areas. The updated City code could also include reference to the CZA listed in 17.70.190 (Designation of Specific Hazards).

Landslide Hazard Areas

Designation/definition of landslide hazard areas in the City appears to be in general accordance with our technical and regulatory experience, information contained within codes from other sources, and the limited BAS information published. The current code has information presented in various parts of the chapter including classifications, allowed activities, reporting requirements, and performance standards. There are opportunities to tighten the code up during the general code update.

Dissimilar to most Puget Sound jurisdictions, the City has significant areas with exposed bedrock, and stability considerations of rock are not currently included in the City code. It may be appropriate to include a definition where exposed rock conditions occur that would require being addressed as a landslide hazard area.

Slope Stability Analysis

The current City code states that the proposed development should not decrease the factor of safety for landslide occurrences below 1.5 for static conditions and 1.2 for dynamic conditions, based on a minimum horizontal acceleration as established by the current version of the Uniform Building Code (since replaced by IBC). The City code does not state when a quantitative analysis should be completed. The Skagit County code requires a slope stability analysis be completed when the property owner would like to decrease the buffer from their 30-foot minimum and the minimum factor of safety should be a minimum of 1.5 for static and 1.25 for seismic conditions or 10 feet whichever is greater.

Many codes do not include specific slope stability analysis and performance standards. Some of the jurisdictions who have experienced significant development in landslide areas (such as City of Seattle and Island County), include language that can require one or both. As a minimum, we recommend that the code allow the director to require a quantitative slope stability analysis and even seismically induced landslide displacement analysis for projects with potential life-safety and/or property impact considerations associated with landslide hazard areas.

Setbacks

Often the terms buffers and setbacks are used interchangeably in geohazard codes, which can be confusing. Buffers are also used for wetlands and other critical areas. The current Anacortes code lists the minimum “buffer” as equal to the height of the slope or 50 feet, whichever is greater. The “buffer” can be reduced to 10 feet if the qualified professional can demonstrate adequate protection or can be increased by the planning director. Because most of the steep slopes in the City are on small developed properties, it may be appropriate to use a different height methodology (such as H/3 similar to the IBC, or half the slope height) or a minimum, whichever is greater. Rather than 10 feet as a minimum, a minimum setback of 15 feet might be considered and more consistent with the minimum setbacks of some other codes. It may also be appropriate to include language that the director can include vegetation or other measures in the setback area/buffer to minimize impacts and resist erosion.

Infiltration Near Slopes

It is recognized that infiltration of stormwater is a preferred stormwater practice in Western Washington. However, infiltration of stormwater on or adjacent to a steep slope can adversely impact slope stability and life safety. Therefore, we recommend that stormwater infiltration in landslide hazard areas be evaluated by a qualified professional to determine that it would not adversely affect stability in the area and/or provide appropriate design and mitigation measures.

Property Covenant

A property covenant is included when developments occur in landslide hazard areas in the City of Everett, City of Seattle, and Island County critical areas regulations. It may be appropriate for the City to consider this addition to the CAO to protect the city from liability.

Formal Peer Review

The City does not have staff capable of doing a professional review of geotechnical/geologic reports submitted for evaluation of landslide hazard areas. Considering the potential impacts and liability associated with landslides, we recommend that the updated code allow for formal peer reviews by a qualified professional under contract to the City. Island County splits the cost with the applicant, while most jurisdictions require that the applicant carry the entire cost.

Seismic Hazard Areas

Development standards for Seismic Hazard Areas in the City are in general accordance with our technical and regulatory experience, information contained within codes from other sources, and the BAS information.

Mine Hazards

Historical coal mines were not identified in the City or immediate vicinity. Two historical mineral mines were identified in the City but we could not find any published references indicated extent and/or any risk or impacts associated with development. If a concern exists from a life safety or property standpoint, these mines could be identified with an appropriate risk statement. Further research would be necessary to evaluate these historical mines and any associated risk related to future development.

Many jurisdictions do not include development language related to coal mines or mines if these hazards are not identified in the area. In the absence of published information regarding mines in the City and immediate area, we conclude that mines may be designated/defined in accordance with the WAC, but classified as “no risk” in the City code unless new information is obtained in the future. Under these circumstances, development regulations related to addressing mines could be removed from the updated GHA section of the CAO code.

Volcanic Hazards

The City does not appear to be at risk of volcanic hazards. Many jurisdictions do not include development regulations related to volcanic hazards if the area is not at risk of significant impact other than airborne particulates. We conclude that volcanic hazards may be classified as “no risk” in the updated City CAO code. Therefore, development requirements related to addressing volcanic hazards could be removed from the updated GHA section of the CAO code.

Vegetation Management

Most of the codes state that removal of vegetation is prohibited in erosion or landslide hazard areas unless it is part of an approved plan (i.e. clearing and grading shall be limited to the approved development). Vegetation management or restoration plans prepared by qualified professionals are sometimes required to maintain slope stability. Some exceptions can be established, including removal due to established disease infestation, tree fall, or other hazard. As previously mentioned, the Whatcom County code requires vegetation within the landslide setback area/buffer or the director can require other measures to stabilize the soil. Current City code mentions that a mitigation plan should include a vegetation management plan and/or replanting plan in 17.70.240.

Maps

We recommend that the following maps be added to Section 17.70.210:

- Skagit County, Skagit County Potential Landslide and Erosion Areas, 2016.
- Washington Department of Natural Resources (DNR), 2004, Liquefaction Susceptibility and Site Class Maps of Washington State, by County, also available: http://www.dnr.wa.gov/ResearchScience/Topics/GeologyPublicationsLibrary/Pages/pub_ofr04-20.aspx. (added to list in City of Shoreline update in 2015)
- Washington Department of Natural Resources (DNR) 2005-Tsunami Hazard Map of the Anacortes-Whidbey Island Area, Washington: Modeled Tsunami Inundation from a Cascadia Subduction Zone Earthquake.

BAS REVIEW FOR FREQUENTLY FLOODED AREAS

FFAs are defined by WAC 365-190-030 by:

“Frequently flooded areas are lands in the flood plain subject to at least a one percent or greater chance of flooding in any given year, or within areas subject to flooding due to high groundwater. These areas include, but are not limited to streams, rivers, lakes, coastal areas, wetlands, and areas where high groundwater forms ponds on the ground surface.”

In the specific discussion off FFAs, WAC 365-190-120 states: “Flood plains and other areas subject to flooding perform important hydrologic functions and may present a risk to persons and property.” The FFAs should include (as a minimum) the 100-year flood plain designations of Federal Emergency Management Agency (FEMA) and the National Flood Insurance Program (NFIP). Other considerations from this part of the WAC include:

- effects of flooding on human health and safety, public facilities and services;
- available documentation including federal, state, and local laws, regulations, and programs, local studies and maps, and federal flood insurance programs, including the provision for urban growth areas in RCW 36.70A.110;
- the future flow flood plain, defined as the channel for the stream and that portion of the adjoining flood plain that is necessary to contain and discharge the base flood flow at build out;
- the potential effects of tsunami, high tides with strong winds, sea level rise, and extreme weather events, including those potentially resulting from global climate change; and
- greater surface runoff caused by increasing impervious surfaces.

The review of the existing code, BAS including sea level rise, and discussion of flood risk management, mapping, potential actions and references related to FFA is presented in the CGS memorandum presented in Appendix A.

Sea Level Rise

We understand that the City is going to address climate change and sea level rise during the shoreline master program update planned in 2018. The CGS report in Appendix A presents a BAS discussion related to sea level rise. The understanding of these phenomena in the scientific community is rapidly changing, and conditions are expected to continue to change. Some additional information and a new publication are available since the CGS memorandum (January 19, 2017). While not necessarily linked to climate change, an iceberg about the size of Delaware split off from Antarctica's Larsen C shelf between July 10 and 12, 2017.

Guidance to California state agencies for incorporating sea level rise was initially presented in "The State of California Sea-Level Rise Guidance Document" and was adopted by the State of California in 2010, later updated in 2013. The State of California has a new law that requires all cities and counties to incorporate climate change into their planning efforts. California state agencies are in the process of preparing a second update to reflect recent advances in ice loss science and projections of sea level rise. A working group of the California Ocean Protection Council Science Advisory Team (OPC-SAT) prepared a recent document (April 2017) that summarizes the "state of the science" on sea level rise, "Rising Seas in California, An Update on Sea-Level Rise Science," that will serve as the scientific foundation for the public engagement process, discussion, and preparation of the update in the guidance document. The main points of this document are summarized below:

- Coastal California is experiencing documented early impacts of sea level rise including more extensive coastal flooding during storms, period tidal flooding and increasing coast erosion. The amount of shoreline, private and public infrastructure, and commerce along California coasts at risk is immense and driving both the science and the policy.
- The main focus of this document is that it is the scientific contributors concluded that the ice loss from the Greenland and Antarctica ice sheets will soon become the primary contributor to global sea level rise. In particular, models suggest that melting of the Antarctica ice sheet will have significant impacts on California in particular and the West Coast.
- If greenhouse gas emissions continue even at present levels, "...key glaciological processes could cross thresholds that lead to rapidly accelerating and effectively irreversible ice loss." The document discusses observations of Antarctica ice sheet melt rates, which are accelerated once large icebergs break off from the main ice sheet.
- The document offers that there is a better scientific understanding of how the climate and oceans are rapidly changing, and concludes that more defensible decisions can be made by governing bodies. The document does not suggest large differences in sea level rise projects under different emissions scenarios prior to 2050; however, after 2050, the projection scenarios diverge significantly under a rapid ice sheet loss on Antarctica. The rate of sea-level rise could be 30 to 40 times faster than the sea level rise experienced over the last century, with a predicted rise of 10 feet by the year 2100 under what the documents states as currently considered the extreme case.
 - This maximum level is twice as high as any other maximum predicted scenarios based on our review of available information.

This new information does not need to have a big impact on the City's 2017/2018 planning efforts related to climate change and sea level rise. While the WAC indicates climate change and sea level rise are to be

considered in new codes, there is no consistency, at least yet, in how this is addressed by Puget Sound jurisdictions. Under these circumstances, it is our recommendation to include at least a preliminary assessment of potential impacts of various scenarios, and to incorporate a clear articulation of the implications of the uncertainty into both future policies and regulations as the City moves forward on the shoreline master program update in 2018. We expect that more refined information will start becoming available in the next 2 to 5 years.

LIMITATIONS

We have prepared this report for use by the City in revising the existing the City Critical Areas Regulations. Our interpretations and recommendations are based on our review of select scientific maps and literature, information provided by the OCD, and our technical and regulatory experience.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted practices in the field of geotechnical engineering in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

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APPENDIX A

**“City of Anacortes Critical Areas Ordinance Update:
Frequently Flooded Areas,” Memorandum by Coastal
Geologic Services, Inc. dated January 19, 2017**

memorandum

Date: January 19th, 2017

To: City of Anacortes for GeoEngineers

From: Coastal Geologic Services, Inc.

Re: **City of Anacortes Critical Areas Ordinance Update: Frequently Flooded Areas**

Introduction and Purpose

Coastal Geologic Services, Inc. (CGS) was recently subcontracted by GeoEngineers to contribute to the City of Anacortes to update Article II of The City's Critical Areas Ordinance (Anacortes Municipal Code Chapter 17.70) — Frequently Flooded Areas. The update is to include considerations related to sea level rise (SLR). CGS reviewed the best available science (BAS) on SLR projections for the Puget Sound region and compiled a list of recommendations to equip the City's planning team to better prepare for higher seas.

Sea level rise (SLR) is difficult to incorporate into planning documents because of the wide range of projections and the long-term time frame. Planning for the short term may involve more time-intensive updates and costly damage to infrastructure if proper preventative measures are not taken. The City of Anacortes Critical Areas Ordinance (CAO) does not currently address rising sea levels. By incorporating SLR into official planning code, Anacortes is taking important steps toward preparing for the effects of climate change on their frequently flooded areas and creating a safer and more resilient community and environment.

Review of Current CAO

Washington State enacted the Growth Management Act in 1990 requiring each city and county to identify and protect five Critical Areas within their jurisdiction, one of which is Frequently Flooded Areas. While it is important to develop standards for doing so, many Washington jurisdictions, including the City of Anacortes, operate under a single format that does not account for specific local conditions.

Frequently flooded areas are often defined in terms of river flooding. Because much of the local floodplain within City limits lies within the coastal zone, sea level rise is of primary importance for City planning. Similar to most older CAO language, the current CAO does not discuss sea level rise. In addressing this issue, the Anacortes Shoreline Master Program (SMP) and CAO should work together to seamlessly integrate the protection of natural and built environments. The SMP currently incorporates the development standards from the Frequently Flooded Areas regulations into its code, under Chapter 6, Section 8: "All new development and new uses within the jurisdiction of this Master Program shall comply with the provisions of Section A-1, Frequently Flooded Areas located in Appendix A of this Master Program." Much of the FFA text is included verbatim within the Shoreline Master Program.

This memo briefly examines ecological significance of floodplains but does not discuss these factors at length because it is assumed that the SMP addresses these issues where floodplains and coastal zones overlap.

Sea Level Rise Best Available Science

Flooding in the City of Anacortes occurs primarily within the coastal zone, which is at the forefront of sea level rise planning. To understand how these areas could change in the future, it is imperative to consider the most up-to-date research on sea level rise projections for the region. Below is a review of the best available science for sea level rise from a global, regional, and local perspective.

Global

The Intergovernmental Panel on Climate Change (IPCC) argues that global sea level rose at an increasing rate during the past century, and that this trend will continue over the next century. The IPCC has determined that it is very likely that sea level rose at a rate of 0.67 inches/decade between 1901 and 2010. Observed rates from 1971–2010 and 1993–2010 are roughly 0.79 and 1.26 inches/decade (respectively), whereas predicted rates for high emissions scenarios are between 3.15 to 6.23 inches/decade for 2081–2100 (IPCC 2014). In the 2007 Synthesis Report, the IPCC projected sea level to rise 7–15 inches for their lowest CO₂ emissions scenario to 10–23 inches for their highest emissions scenario by the end of the 21st century (IPCC 2007). Their newest report projects a low estimate of 10–22 inches and a high estimate of 18–32 inches by 2081–2100 (IPCC 2014).

In the 2014 IPCC Fifth Assessment Report, all climate predictions were based on four emissions scenarios:

1. **RCP2.6** predicts CO₂ concentrations between 430 and 580 ppm by 2100, and incorporates strict policies that significantly cut emissions by as much as 70% by 2050
2. **RCP 4.5** predicts more moderate CO₂ levels between 580 to 720 ppm by 2100
3. **RCP6.0** predicts a higher moderate concentration of 720 to 1000 ppm by 2100
4. **RCP8.5** predicts the highest concentrations of CO₂ at over 1000 ppm by 2100

The current baseline, with no additional measures to cut emissions or reduce impacts, lies between RCPs 6.0 and 8.5 (IPCC 2014). All four scenarios are plausible by 2100 but largely depend on critical policy decisions over coming decades.

The 2007 Fourth Assessment Report did not include certain future effects of ice sheet melting in their projections of sea level rise (SLR) because there was not enough information or understanding of ice sheet dynamics to maintain an acceptable level of confidence (IPCC 2007, Table SPM.1). The 2014 Fifth Assessment Report incorporates these potential impacts with low confidence levels, but there is still a significant amount of uncertainty, explaining the wide range for each SLR scenario.

There is a huge amount of variability in SLR projections from many regions, ranging from 3.6 to 6.6 feet by 2100, but a recent study concludes that global SLR greater than 5.9 feet is less than 5% probable and therein places a tentative cap on expected sea levels for this century (Jevrejeva et al. 2014).

Given the large amount of variation attributed to ocean circulation and atmospheric circulation (e.g., El Niño Southern Oscillation (ENSO) and Pacific Decadal Oscillation (PDO)), many regions may differ from the global mean in terms of SLR — the Eastern Pacific has been largely at or below the rates of global mean sea level rise since 1993, while projections for the Western Pacific have been significantly higher, sometimes by a factor of three (IPCC 2014, section 1.1.4). A “medium” estimate presented by Mote et al. (2008) is that these global SLR estimates will closely match those expected in Puget Sound during the next century.

Puget Sound and the Pacific Northwest

Sea level rise estimates for Puget Sound are influenced by a variety of factors, primarily: thermal expansion of the world's oceans, rapid melting of ice-caps and glaciers, local atmospheric impacts such as wind, and local vertical land motion due to plate tectonics (Mote et al. 2008). A commonly referenced estimate from Mote et al. predicts sea level in Puget Sound will rise 6.0 inches (medium) to 22 inches (very high) by 2050, and as much as 50 inches by 2100. This estimate takes into account a potential increase in SLR rate due to climate change proposed by the IPCC. If sea level rise continues at a constant rate, an extrapolation of tidal gauge records from 1899–2015 would project 6.6 inches of SLR by 2100 (https://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?stnid=9447130)

Sea level rise effects can vary considerably within Puget Sound due to vertical land motion (VLM). Studies show that Neah Bay is being uplifted as the Juan de Fuca Plate subducts under the North American Plate along the Cascadia Subduction Zone, literally pushing the western Olympic Peninsula upwards (National Research Council 2012). Uplift is happening at over 0.79 inches/decade — faster than SLR — in Neah Bay. Therefore, relative SLR projections at Neah Bay are negative (Figure 1, Mazzotti et al. 2008). By contrast, Olympia is subsiding, causing sea level rise to have a greater local effect: the City of Olympia is currently planning for 50 inches of sea level rise by 2100. The City of Olympia is in the early process of developing a Sea Level Response Plan that will go into effect in 2019.

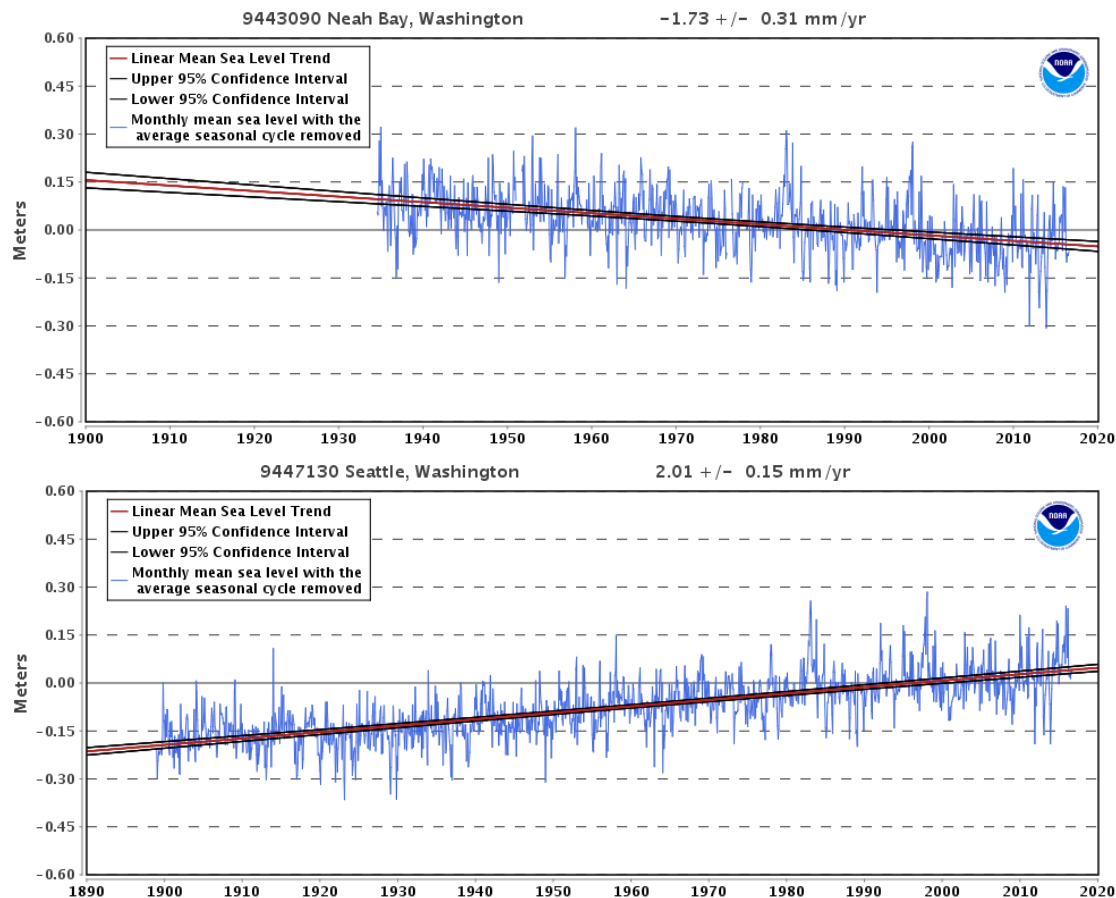


Figure 1. Mean Sea Level (MSL) trend for Neah Bay (top image) and Seattle (bottom image). Neah Bay is experiencing falling sea levels due to the local impact of vertical land motion, whereas in Seattle, relative sea level is rising (NOAA CO-OPS Tides and Currents: <https://www.tidesandcurrents.noaa.gov/sltrends/sltrends.html>).

Anacortes

Skagit County is predicted to experience a similar SLR to the global and regional estimates discussed above, but local impacts may vary. It is helpful to visualize, using data from the NOAA Sea Level Rise Visualization Tool (<https://coast.noaa.gov/slr/>), how national predictions will impact the City of Anacortes (Figures 2 and 3). It is important to note that this tool is helpful for initial visualization but may not be how SLR will manifest in this area.

The Geological Survey of Canada used the CAS3D-2 model to predict that Anacortes is experiencing a VLM subsidence rate of -0.34 inches/decade (National Research Council 2012). According to a study by Verdonck (2006), Anacortes is situated roughly between the boundaries of an uplift zone and subsidence zone in Puget Sound, explaining the small rate of vertical land motion.



Figure 2. Low-lying areas currently subject to shallow coastal flooding. The wastewater treatment plant is in a particularly vulnerable area. Note: data are based on local tidal height thresholds from a three year average between 2007 and 2009; current conditions may be different for specific areas (NOAA 2016).

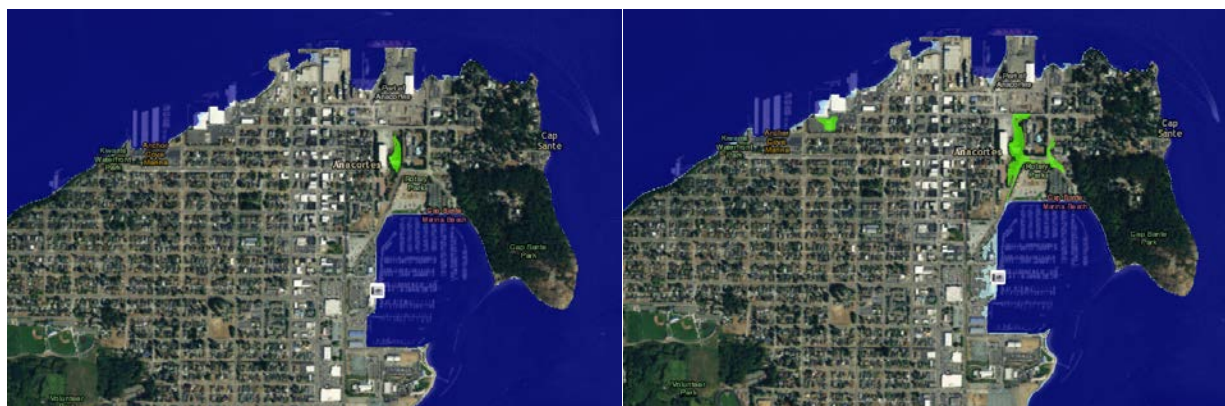


Figure 3. A simulation for downtown Anacortes based on the extreme projections for Puget Sound in the Mote et al. (2008) study: Left panel shows the relative land elevation conditions (green=hydrologically unconnected low-lying areas where water may collect) if sea level rose 2 FT; right panel shows the relative land elevation conditions if sea level rose 4 FT, with much of the port, marina and the wastewater treatment plant in low-lying areas at risk for inundation (light blue=extent of actual inundation). There is not 100% confidence in the mapping techniques or the exact extent of flooding, and the maps do not consider habitat migration or stormwater infrastructure. Simulation from NOAA’s Sea Level Rise Visualization Tool.

Summary

Sea level rise estimates are highly variable and difficult to predict given the wide range of local and global factors involved, and the uncertainty surrounding those factors. The best available data with global and regional considerations are the most recent 2014 IPCC publication and the 2012 analysis by the National Academy of Sciences (refer to Table 1). In general, more recent publications are better, but global SLR is still uncertain and the current IPCC estimates have not been applied to the Puget Sound and Anacortes region specifically. Global estimates offer a baseline, but “rates of sea-level rise calculated with climate and ice sheet models are generally lower than observed rates” (Rahmstorf 2007). Because of this discrepancy, it is highly recommended for local jurisdictions to be flexible and strongly consider site-specific conditions when planning for sea level rise and increased flood risk.

Table 1. Summary of global and regional sea level rise estimates for 2050 and 2100. Values are in inches.

Region	Source	Low-Med-High	2050	2100
Global	IPCC 2007	Low (B1 scenario)	-	7–15
		Med (A1B scenario)	-	8.3–18.9
		High (A1FI scenario)	-	10.2–23.2
Global	IPCC 2014	Low (RCP2.6 scenario)	6.6–12.6	10.2–21.6
		High (RCP8.5 scenario)	8.7–15	17.7–32.3
Global	Rahmstorf 2007	-	-	20–55*
Global	NAS 2012	-	7–19	20–55
Puget Sound	Mote et al. 2008	Low	3.0	6.0
		Med	6.0	13.0
		High	22.0	50.0
Seattle	NAS 2012	-	6.5 ± 4.1	24.3 ± 11.5
Seattle	Mazotti et al. 2008	-	-	13.4–15.4 (RSL)
Olympia	City of Olympia 2010	-	-	50.0
Vancouver	BC Govt, (Bornhold 2008)	High	-	35.0–40.5

*Above the 1990 level; relationship of SLR to sea temperatures applied to IPCC estimates.

Effects of Sea Level Rise

Frequency of Coastal Flooding

Current low-lying areas are subject to yearly flooding events, which are predicted to increase in both number and duration. In Port Townsend, for example, flooding of land begins at 11.5 FT MLLW a few times each year but is expected to increase to approximately 300 times (events) per year if sea level rises 3.3 feet (NOAA 2016). Current 100-year flood events could occur once every 10 years, and annual events could happen daily.

Habitat Response

Regional SLR in the Pacific Northwest is predicted to shift coastal habitats inland, potentially contributing to losses or creation of new habitat where land was previously dry year-round. In a 2007 study of Puget Sound, Glick et al. (2007) used the Sea Level Affecting Marshes Model (SLAMM) to estimate impacts to habitat and found that marshes near Anacortes (in Padilla Bay, Skagit Bay, and Port Susan Bay, including the eastern portion of Anacortes city limits) may lose up to 77% of brackish marsh and 91% of estuarine beaches by 2100. This is mostly due to a concept known as “The Coastal Squeeze”, where intertidal habitats are trapped by bulkheads and seawalls as they shift inland in response to SLR (Pontee 2013). This could also potentially impact zoning codes as jurisdictional boundary lines shift and land cover adapts to an increased presence of water.

Landward migration of the shoreline was originally thought to be an equal give-and-take process, whereby a beach profile would maintain its original geometry as it shifted. This theory is known as the Bruun Rule. New knowledge on the behavior of beaches and bluffs experiencing SLR discredits parts of this theory, namely that such conditions do not exist in real life due to the complexities of the nearshore environment. The rule also assumes no accretion, but there are shorefaces that experience accretion under SLR conditions (Cooper and Pilkey 2004, Hesselgrave 2016). This adds further uncertainty when planning for the effects of SLR in frequently flooded areas, but should be acknowledged in the code as a possible risk factor for new development in coastal floodplain areas.

Storminess

Locations along the Pacific Northwest Coast may be more likely to see extreme storm events exceed historical trends due predominantly to sea level rise (Tebaldi et al. 2012). A study by Ruggiero et al. (2010) showed that significant wave heights had increased significantly in the latter part of the 20th century. However, there is currently not enough information to broadly predict an increase in extreme tides, surges, or flood risks in the Pacific Northwest or around the world (IPCC 2014; National Research Council 2012). Many nuances exist within Puget Sound that contribute to the difficulty of estimating the impacts of sea level rise on storms.

Tsunamis

SLR is not projected to change the size or prevalence of tsunamis, but will increase their base elevation and thus potential for flood damage. In general, tsunamis in Anacortes are not projected to be nearly as large as on coasts exposed directly to major fault zones. Currently, Skyline Marina and Flounder Bay may experience inundation between 1.6 to 6.6 feet in the event of a large Cascadia subduction zone earthquake and corresponding tsunami (WDNR 2005). Tsunami wave amplitudes approaching western Fidalgo Island are only estimated to be between 4.9 and 5.9 feet, but downtown Anacortes is not expected to experience much inundation (Venturato et al. 2004).

Predicted Anacortes king tide events for the 2015/2016 winter season were around 9.1–9.2 feet above MLLW (NOAA 2016 tide publications). Actual peak king tide events are often higher than predicted due to low pressure storm systems. During the March 10, 2016 southerly windstorm and low pressure system, the peak water level at the Cherry Point NOAA station (nearest station) was 11.94 FT MLLW at 6:15am, while the predicted water level was 9.47 FT MLLW. Therefore the tide that morning ran about 2.5 FT high. The water level at the Port Townsend NOAA station was running 2.25 FT high at the same time.

Normal tides around Anacortes may rise and fall around 8 feet per day – an incoming tsunami wave measuring 2.5–3 feet will not likely have a noticeable effect during normal conditions — the highest observed water level on record at Port Townsend, a common reference tidal station for Anacortes, was approximately 3.2 feet above MHHW (NOAA). Unless a tsunami coincides with an extreme high tide, such as a king tide, the inundation risk from a tsunami is relatively low and would be short-lived.

Flood Risk Management

Development Standards

Current Anacortes CAO aims to “control the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters” and to “prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters or may increase flood hazards in other areas” (17.70.020(A)(3)). Currently, new development in floodplains must obtain a special floodplain development permit and adhere to strict building regulations or obtain a variance. “Development” is currently defined as:

“any human-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials located within the area of special flood hazard.” (17.70.030)

New development must have its lowest floor at least 1 foot above the base flood elevation, or have a breakaway structure underneath the house that is designed to collapse under a certain water load (17.70.060(B)). Because the base flood elevation is projected to change, the City should plan for a higher-end prediction to set development standards against. All codified actions in the current FFA are intended to be interpreted as “minimum requirements” (17.70.040(E)(1)), so this gives a well-positioned platform from which to build flexibility in SLR responses.

The City might consider establishing a setback from special flood hazard areas (SFHA) that reflects projected inland migration of the shoreline and disconnected low-land areas at risk of flooding. This reduces the need to erect flood protection barriers which may be costly and require maintenance, sometimes at the expense of the public. Setbacks are advised to also account for the accelerated erosion rates at beaches and bluffs in response to SLR (Shipman 2009).

Ecosystem and Floodplain Protection

“Flood risk management and ecosystem recovery are not mutually exclusive goals yet have been historically pursued independent of one another” (Puget Sound Partnership 2012). Integrating and balancing these different goals is the key to smart and sustainable management of frequently flooded areas.

Anacortes does not have an extensive 100-year floodplain like Skagit Valley. However, it is still important to restrict new development in areas on or near the current 100-year floodplain (which is subject to move or expand due to SLR). Groundwater flooding will occur in areas but hard surfaces may increase pressure and cause damage to underground infrastructure. The inland lakes in Anacortes are expected to expand in a 100-year flood event, but base flood elevations are not known for these lakes (according to the FIRM mapping last updated in September 2003).

The Skagit County Planning Commission and the Board of County Commissioners adopted proposed changes to their Critical Areas Ordinance and Flood Damage Prevention in 2011 (Ordinance #O20110008). The changes were suggested by the Biological Opinion, originally conducted by the National Marine Fisheries Service (NMFS) to require compliance with the Endangered Species Act when communities prepared for flood damage prevention. One important proposal was the expanded definition of “Development” (mentioned above) to include “removal of substantial amounts of vegetation, or alteration of natural site characteristics” (BiOp Checklist). By expanding this definition, more activities fall within floodplain development permit requirements, thereby further controlling floodplain development in order to preserve natural ecological functions. These revisions currently appear in Title 14, chapters 24 (CAO) and 34 (Flood Damage Prevention) in the Skagit County Code, and are awaiting FEMA review.

New and substantial improvements to development within the floodplain currently require a special permit and may also require a habitat assessment (BiOp review 2011). Variances must demonstrate that ecological functions within the floodplain will not be impacted (“no net loss”). The FFA also recognizes that construction of flood barriers may exacerbate flooding and damage in other areas, potentially impacting homes as well as habitats for important fish and bird species.

Surf smelt, sand lance, and herring have documented spawning locations on several beaches in Anacortes, including the Washington Park boat launch, Ferry Beach, and the Anacortes Marina (http://wdfw.wa.gov/conservation/research/projects/marine_beach_spawning/). It has been documented that these forage fish and juvenile salmon rely on gently sloped beaches and coastal marshes to provide nursery functions and protection from predators, but these important habitats are at risk of being eliminated due to the continued construction of hard armor in response to flooding and sea level rise (Munsch et al. 2016).

Shallow intertidal zones and other coastal habitats may act as protection against higher waters and wave action. Along with their ecological significance to forage fish and juvenile salmon, these areas can dissipate incoming wave energy and lessen damaging impact on the backshore (Cooper 2003). Common strategies for managing high water and wave action are constructing bulkheads such as riprap revetments or rockery walls, but a heavily armored shore may require costly maintenance and can eliminate the natural buffer effect of coastlines.

Critical Infrastructure

The City of Anacortes is listed as one of several especially vulnerable areas in Skagit County to tidal flooding and severe storm events due to its low elevation and northern aspect — severe storms and high tides occur together mostly during the winter months when strong winds from the north push water toward the coastlines of downtown Anacortes (Skagit County 2014). The Port is of particular

concern, located in a high risk, Flood Zone “A” area (i.e. area of special flood hazard), where portions of the filled shore may become inundated in a 100-year flood event (Coastal Zone Atlas flood maps).

Managed Realignment

Managed realignment, or managed retreat, is becoming a preferred engineering approach to addressing SLR on the coast of England and elsewhere. Managed realignment is the process of “deliberately breaching, entirely removing, or relocating landward” existing coastal structures designed to defend against flood or erosion, however this definition does not adequately cover all aspects of the approach (Cooper 2003). A good number of coastal roads have been relocated landward in the past 15 years in north Puget Sound counties, such as Deer Harbor Road on Orcas Island, Lummi View Drive west of Bellingham, and Cook Avenue near Port Townsend. While managed realignment may be a viable option for mitigating SLR, the key element is inland space, and the shores of Anacortes are fairly heavily developed with limited room to retreat. This tactic may be considered by the City, but further feasibility research is needed before a recommendation can be made.

Updated Mapping Techniques

FEMA flood mapping of Anacortes was last released in 2003, and features hand-drawn mapping techniques that do not take advantage of the computerization of mapping. Current efforts by FEMA to revise these maps are on indefinite hold due to difficulties or disagreements in mapping Skagit River levees (new FIRM maps will not have separate maps for cities). These updated maps are “nowhere near being ready” (David Radabaugh, NFIP State Coordinator, pers. comm.).

High-resolution aerial laser scanning (light detection and ranging; LiDAR) has recently become more affordable, and new LiDAR mapping would enable Anacortes to better prepare for coastal flooding.

LiDAR

According to Dalton et al. (2013), one of the main obstacles in assessing how communities will be impacted by climate change and SLR is “limited site-specific elevation data for quantifying the exposure of critical infrastructure to sea level rise and other hazards”. Increased mapping accuracy of floodplain areas and sea level rise extent can inform stronger planning decisions and development standards. The current LiDAR resolution is poor (approximately 10 FT), but newer technology can achieve 1-foot spatial resolution. For the City of Anacortes, obtaining updated, high-resolution elevation data is essential in determining the risk of flooding. Small changes in sea level may not be reflected in coarser data but could have broad impacts in both coastal areas and inland lakes or where the water table is high.

LiDAR, with respect to older satellite- and ground-based mapping techniques, produces significantly less uncertainty and tighter representations of SLR inundation risk (see Figure 3 in: Gesch 2009). Cooper et al. (2013) evaluate three methods of GIS-based LiDAR mapping for determining risk of flooding and inundation in coastal areas, and suggest best practices for sea level rise mapping. They argue that modeling must not assume areas in direct connection to marine waters are the only areas that will experience flooding in the event of high water. Because ground-water is disconnected, water seepage in low-lying areas may also lead to flooding.

Map Products

Currently, the Anacortes CAO aims to “ensure that potential buyers are notified that property is in an area of special flood hazard” (17.70.020(A)(2)(g)). One possible application of updated LiDAR mapping is

to extend this provision to require potential landowners to be notified if they plan to build in a *future floodplain* that may occur as a result of the City's accepted SLR scenario. Where NFIP requires landowners to sign off on higher rates if they build in a flood zone, individuals could face an increase in rates if their property becomes subject to the special flood hazard area.

Potential Actions

As cities and counties prepare for the uncertain effects of sea level rise, it is important to consider both short-term and long-term scenarios. What may seem like unnecessary action now may become critical during this century: "Protecting against flooding and erosion [now] is considered economically rational for most developed coastlines in many countries under all . . . sea level rise scenarios analyzed" (IPCC 2014). We offer the following recommendations for potential action in terms of addressing the current CAO, analyzing and mapping effects of SLR, and integrating SLR planning into the CAO.

Developing a SLR Standard

- ◆ Choose a sea level rise projection that is appropriate for the City of Anacortes, considering all best available science and potential unknowns. Selecting projections for both 2050 and 2100 is recommended to develop shorter- and longer-term plans.
- ◆ Revisit SLR projections regularly (every 5 years is prudent) and revise them if necessary. Sea level is projected to rise at an increasing rate in this century.
- ◆ Reference all elevations to the North American Vertical Datum of 1988 for consistency with tide gauges and professional surveyors.

Addressing the Current CAO

- ◆ Increase the lowest floor level elevation from 1 foot to 2–4 feet above the base flood elevation for new development or improvements in current floodplains.
- ◆ Adapt the applications for a floodplain development permit to reference all structure elevations to projected mean sea level (using SLR estimates) instead of current mean sea level, or modify to reference the elevation of mean higher high water.
- ◆ Continue to inform permit applicants that their property is within the current floodplain, and also if it is within the **future floodplain**.
- ◆ Enhance and/or promote the section of the FFA code titled "Coastal High Hazard Areas", as most floodplains in Anacortes are in direct contact with the coastline.
- ◆ Create language that differentiates cautious planning from legal minimums.
- ◆ Tsunamis are currently not addressed in the Frequently Flooded Areas chapter, but could be mentioned briefly in future code language as a potential risk in the event of a large Cascadia earthquake, and would likely be exacerbated by SLR. The Washington Department of Community, Trade and Economic Development (now Department of Commerce) published a CAO handbook that suggests cities and counties consider tsunami risk and potential impacts when designating and classifying frequently flooded areas (WDCTED 2003).

Development Standards

- ◆ Protect public health and safety as well as public access and enjoyment of coastal flood zones: "Rising sea level does not inherently increase or decrease public access to the shore, but the response to sea level rise can" (US Climate Change Science Program Synthesis and Assessment Product 4.1, 2009).

- ◆ It is recommended to decrease the amount of hard, impervious surfaces near floodplain or risk areas, as these may intensify flood depths and velocities.
- ◆ Keep a detailed inventory of all houses on or near the current **and projected** 100-year floodplain.
- ◆ Flood insurance rates should reflect changing risks.
- ◆ Do encourage resilient building material and design while also considering softer techniques for flood control.
- ◆ The SMP includes a Public Access Element that requires the City to “provide, maintain, and enhance a safe, convenient, and balanced system of public access, both physical and visual.” Anacortes should make every reasonable effort to ensure “physical and visual” access to shores within frequently flooded areas, but widespread construction of hard structures impedes public access and enjoyment, as well as the natural buffering function of coastal areas in response to floodwaters.

Ecosystem and Floodplain Protection

- ◆ As SLR alters coastal habitats, the City should consider impacts of flood prevention measures on forage fish and other environmental health indicators as well, ideally recognizing that natural areas have as much value as built areas and should be considered at risk all the same.
- ◆ Where possible, add language within the FFA development code that supports more natural protection barriers such as enhanced beach berms or vegetation enhancement, and prohibits unnaturally altering flood waters.

Managed Realignment

- ◆ It is recommended that the City of Anacortes investigate opportunities for managed realignment as a mitigation strategy. While the City may not immediately consider realignment, it should nevertheless be discussed in planning and engineering for SLR, but further research into local feasibility is needed.

Updated Mapping Techniques

- ◆ LiDAR data is a valuable tool for city planners investigating flooded areas and SLR effects, among other applications. Consider contracting or purchasing LiDAR data with a 1–3-foot ground resolution.
- ◆ If LiDAR data is purchased, updated orthorectified aerial photography can be ordered at the same time from the same vendor. San Juan County recently purchased orthoimagery (3-inch resolution in built-up areas, and 9-inch countywide) with matching lower-resolution LiDAR.
- ◆ Apply the City’s standard SLR projections to generate new maps of critical areas prone to flooding.
- ◆ Maps should highlight future floodplains.
- ◆ Identify low-lying areas with high fetch length (distance over water in which wind-generated waves can form) to the south and southeast as areas subject to potential wave hazards. Known problem areas such as Croatian Way can help determine thresholds for objective criteria.
- ◆ Make new maps available to the public and other City departments and development groups, including those addressing risk to utilities and other critical infrastructure.

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Department of Commerce

CRITICAL AREAS CHECKLIST

A Technical Assistance Tool From Growth Management Services – updated April 2019

Name of city or county:	
Staff contact, phone, and e-mail address	
INSTRUCTIONS This checklist is intended to help local governments update their development regulations, pursuant to the schedule in RCW 36.70A.130(4) (updated in 2012). We strongly encourage but do not require jurisdictions to complete the checklist and return it to Growth Management Services (GMS), along with their updates. This checklist may be used by all jurisdictions, including those local governments planning for resource lands and critical areas only. For general information on update requirements, refer to Keeping your Comprehensive Plan and Development Regulations Current: A Guide to the Periodic Update Process under the Growth Management Act, August, 2016 and WAC 365-196-610 (updated in 2015). Bold items are a GMA requirement or may be related requirements of other state or federal laws. Commerce WAC provisions are advisory under Commerce’s statutory mandate to provide technical assistance, RCW 43.330.120 which states that the Department of Commerce “...<i>shall help local officials interpret and implement the different requirements of the act through workshops, model ordinances, and information materials.</i>” <u>Underlined</u> items are links to Internet sites and may include best practices or other ideas to consider. If you have questions, call GMS at (360) 725-3066. Updates to Commerce WAC – Revisions to the Commerce WAC relating to critical areas have been provided in a table with dates of changes on the Growth Management Act Periodic Update web site. The table can be used with this checklist to determine what changes have been made since the last update of your critical areas regulations. How to fill out the checklist Using the current version of your critical areas regulations, fill out each item in the checklist. Select the check box or type in text fields, answering the following question: Is this item addressed in your current Critical Areas Ordinance (CAO)? If YES, fill in the form with citation(s) to where in the plan or code the item is addressed. We recommend using citations rather than page numbers because they stay the same regardless of how the document is printed. If you have questions about the requirement, follow the hyperlinks to the relevant statutory provision or rules. If you still have questions, visit the Commerce Growth Management Services Web page or contact one of the Commerce planners assigned to your region.	Contents Instructions.....1 Overall Requirements.....2 Wetlands.....3 Critical Aquifer Recharge Areas.....4 Frequently Flooded Areas.....5 Geologically Hazardous Areas.....6 Fish and Wildlife Habitat Conservation Areas.....7 Designating and Protecting Waters of the State.....8 Anadromous Fisheries.....8 Reason Use Exceptions.....8 Agricultural Activities.....9 Forest Practices Regulations.....9 Good Ideas.....9

CRITICAL AREAS Regulations protecting critical areas are required by RCW 36.70A.060(2) and RCW 36.70A.172(1) . WAC 365-195-900 through 925 provide guidelines. Guidance can also be found in Commerce’s <i>Critical Areas Handbook</i> (Updated June, 2018); the Minimum Guidelines WAC 365-190-080 – 130 ; Best Available Science, Chapter 365-195 WAC ; and Procedural Criteria, WAC 365-196-485 and WAC 365-196-830 , and on Growth Management’s Critical Areas webpage.	
Regulations required to protect critical areas	Addressed in current plan or regulations? If yes, note where
OVERALL REQUIREMENTS The CAO includes best available science to clearly designate and protect all critical areas that might be found within the jurisdiction. 1. Designation of Critical Areas RCW 36.70A.170(1)(d) required all counties and cities to designate critical areas. RCW 36.70A.170(2) requires that counties and cities consider the Commerce Minimum Guidelines pursuant to RCW 36.70A.050. RCW 36.70A.050 directed Commerce to adopt the Minimum Guidelines to classify critical areas. WAC 365-190-080 through 130 (updated in 2010) provide guidance on defining or “designating” each of the five critical areas. WAC 365-190-040 (updated in 2010) outlines the process to classify and designate natural resource lands and critical areas. 2. Definition of Critical Areas RCW 36.70A.030 provides definitions for each type of critical area. Sections (5) regarding fish and wildlife habitat conservation areas; (9) regarding geologically hazardous areas; and (21) regarding wetlands were updated in 2010. WAC 365-190-030 (updated 2010) provides definitions in the Minimum Guidelines. 3. Protection of Critical Areas RCW 36.70A.060 (2) required counties and cities to adopt development regulations that protect the critical areas required to be designated under RCW 36.70A.170. RCW 36.70A.172(1) requires the inclusion of best available science in developing policies and development regulations to protect the functions and values of critical areas. In addition, counties and cities must give special consideration to conservation or protection measures necessary to preserve or enhance anadromous fisheries. 4. Inclusion of Best Available Science RCW 36.70A.172(1) requires inclusion of the best available science (BAS). Chapter 365-195 WAC outlines recommended criteria for determining which information is the BAS, for obtaining the BAS, for including BAS in policies and regulations, for addressing inadequate scientific information, and for demonstrating “special consideration” to conservation or protection measures necessary to preserve or enhance anadromous fisheries. WAC 365-195-915 provides criteria for including BAS in the record.	Was BAS documented in the record for the review and updates to the critical areas regulations? ☐ Yes ☐ No Location in Text:

WETLANDS DEFINITION The definition of wetlands is consistent with RCW 36.70A.030(21) (updated in 2012).	Is the wetland definition consistent with RCW 36.70A.030(21)? ☐ Yes ☐ No ☐ N/A Location in Text:
WETLANDS DELINEATION Wetlands are delineated using the 1987 Federal Wetland Delineation Manual and Regional Supplements in accordance with WAC 173-22-035 (updated in 2011). See Ecology’s Wetland Delineation page and WAC 365-190-090 (updated in 2010) for additional assistance.	Are wetlands delineated using the 1987 Federal Wetland Delineation Manual and Regional Supplements? ☐ Yes ☐ No ☐ N/A Location in Text:
WETLANDS PROTECTION Policies and regulations protect the functions and values of wetlands. RCW 36.70A.172(1) Counties and cities are encouraged to make their actions consistent with the intent and goals of “protection of wetlands”, Executive Order 89-10 as it existed on September 1, 1990. WAC 365-190-090(3) recommends using a wetlands rating system that evaluates the existing wetland functions and values to determine what functions must be protected. Ecology updated its recommended wetlands rating systems effective January 2015. For information on the rating system, including the July 2018 adjustments to ranges for habitat scores, see: • 2014 Updates to the Washington State Wetland Rating Systems • Washington State Wetland Rating System for Western Washington • Washington State Wetland Rating System for Eastern Washington For other resources and guidance on protecting wetlands, go to Ecology’s Local Wetland Regulations: Growth Management Act technical assistance.	Do the regulations use a rating system to determine wetlands protection? ☐ Yes ☐ No ☐ N/A Location in Text

CRITICAL AQUIFER RECHARGE AREAS Policies and regulations protect the functions and values of critical aquifer recharge areas. RCW 36.70A.172(1). Policies and regulations protect the quality and quantity of groundwater used for public water supplies. RCW 36.70A.070(1) and WAC 365-196-485(1)(d). (Required if groundwater is used for potable water.) The following references also relate to protection of groundwater resources: - RCW 90.44 – Regulation of Public Groundwaters - RCW 90.48 – Water Pollution Control (1971) - RCW 90.54 – Water Resources Act of 1971 - RCW 36.36.020 - Creation of aquifer protection area (1988) WAC 365-190-100 Critical Aquifer Recharge Areas (2010) WAC 173-100 Groundwater Management Areas and Programs (1988) WAC 173-200 Water Quality Standards for Groundwaters of the State of Washington (1990) WAC 365-196-735 Consideration of state and regional planning provisions (list) (2010) The Critical Aquifer Recharge Areas Guidance Document (2005) provides information on protecting functions and values of critical aquifer recharge areas, best available science, how to work with state and local regulations and adaptive management. Also, consider the following: - Prohibiting or strictly regulating hazardous uses in critical aquifer recharge areas (CARAs) and designating and protecting wellhead areas. See Ecology’s guidance on Critical Aquifer Recharge Areas. - Limiting impervious surfaces to reduce stormwater runoff, as required under Phase I and II municipal stormwater permits. Ecology’s Stormwater Manual for Western Washington (updated in 2012) includes low impact development (LID) related definitions, requirements, and an LID performance standard. See Stormwater Management and Design Manuals on Ecology’s web page. - See Stormwater Drainage and Water Quality on page 7 of this checklist for additional LID resources.	If groundwater is used for potable water, do regulations protect the quality and quantity of ground water? ☐ Yes ☐ No ☐ N/A Location in text: Are the critical aquifer recharge regulations consistent with current mapping of these critical areas? ☐ Yes ☐ No ☐ N/A Location in text:
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FREQUENTLY FLOODED AREAS

Regulations protect the functions and values of frequently flooded areas and safeguard the public from hazards to health and safety. RCW 36.70A.172(1) [WAC 365-196-830](#) provides: "Protection" in this context means preservation of the functions and values of the natural environment, or to safeguard the public from hazards to health and safety."

[WAC 365-190-110](#) (updated in 2010) directs counties and cities to consider the following when designating and classifying frequently flooded areas:

- (a) Effects of flooding on human health and safety, and to public facilities and services;
- (b) Available documentation including federal, state, and local laws, regulations, and programs, local studies and maps, and federal flood insurance programs, including the provisions for urban growth areas in **RCW 36.70A.110**;
- (c) The future flow flood plain, defined as the channel of the stream and that portion of the adjoining flood plain that is necessary to contain and discharge the base flood flow at build out;
- (d) The potential effects of tsunamis, high tides with strong winds, sea level rise, and extreme weather events, including those potentially resulting from global climate change;
- (e) Greater surface runoff caused by increasing impervious surfaces.

Classification of and regulations for frequently flooded areas should not conflict with the [Federal Emergency Management Agency \(FEMA\)](#) requirements for the National Flood Insurance Program. See [Ecology's Frequently Flooded area guidance](#) and **44 CFR 60**.

Communities that are located on Puget Sound or the Strait of San Juan de Fuca, or have lakes, rivers or streams that directly or indirectly drain to those water bodies, are subject to the National Flood Insurance Program Biological Opinion (BiOp) for Puget Sound (<https://www.fema.gov/media-library/assets/documents/30021>). The biological opinion required changes to the implementation of the National Flood Insurance Program in order to meet the requirements of the Endangered Species Act (ESA) in the Puget Sound watershed. FEMA Region X has developed an implementation plan that allows communities to apply the performance standards contained in the Biological Opinion by implementing:

- 1) a model ordinance (<https://www.fema.gov/media-library/assets/documents/85339>);
- 2) a programmatic Checklist (<https://www.fema.gov/media-library/assets/documents/85336>); or
- 3) on a permit by permit basis (<https://www.fema.gov/media-library/assets/documents/85343>) as long as it can be demonstrated that there is no adverse effect to listed species. Communities have the option of utilizing their CAOs as part of a programmatic response to address the requirements of the biological opinion. FEMA must approve a community's biological opinion compliance strategy.

Additional resources:

RCW 86.12 Flood Control by Counties

RCW 86.16 Floodplain Management

RCW 86.26 State Participation in Flood Control Maintenance

RCW 86.16.041 Floodplain Management Ordinance and Amendments

[WAC 173-158-070](#) Requirements for construction in Special Flood Hazard Areas

Are frequently flooded areas designated and regulated using FEMA and Ecology guidance?

☐ Yes

☐ No

☐ N/A

Location in Text:

Are you utilizing your CAO as part of a programmatic response to the BiOp?

☐ Yes

☐ No

☐ N/A

Location in Text:

DEFINITION OF GEOLOGICALLY HAZARDOUS AREAS The definition of geologically hazardous areas is consistent with RCW 36.70A.030(10) (updated 2012). “Geologically hazardous areas” means areas that because of their susceptibility to erosion, sliding, earthquake, or other geological events, are not suited to the siting of commercial, residential, or industrial development consistent with public health or safety concerns.	Is the geologically hazardous areas definition consistent with RCW 36.70A.030(10)? ☐ Yes ☐ No ☐ N/A Location in Text:
PROTECTION OF GEOLOGICALLY HAZARDOUS AREAS Regulations protect the functions and values of geologically hazardous areas and safeguard the public from hazards to health and safety. RCW 36.70A.172(1) WAC 365-196-830 (2010) provides:” “Protection” in this context means preservation of the functions and values of the natural environment, or to safeguard the public from hazards to health and safety.” Geologically hazardous areas are designated, and their use is regulated or limited consistent with public health and safety concerns. RCW 36.70A.030(10) provides a definition (updated in 2012) and WAC 365-190-120 describes the different types of hazardous areas (2010): • Geologically hazardous areas include: • seismic hazards • tsunami hazards • landslide hazards, • areas prone to erosion hazards • volcanic hazards • channel migration zones • areas subject to differential settlement from coal mines or other subterranean voids. • Critical facilities, such as hospitals and emergency response centers, hazardous materials storage, etc. should be restricted in hazard zones. The Department of Natural Resource’s Geologic Hazards and the Environment website includes information on earthquakes and faults, landslides, volcanoes and lahars, tsunamis, hazardous minerals, emergency preparedness and includes geologic hazard maps.	Are uses in geologically hazardous areas designated and regulated or limited consistent with public health and safety? ☐ Yes ☐ No ☐ N/A Location in Text:

Also see the Puget Sound Partnership's Salmon Recovery web site for WRIA Plans in Puget Sound.	
DESIGNATING AND PROTECTING WATERS OF THE STATE RCW 90.48.020 defines waters of the state, which include all surface waters, salt waters, groundwater and all other water courses in Washington. WAC 365-190-130(2) (updated in 2010) recommends designating all waters of the state as fish and wildlife habitat conservation areas (FWHAs). Stream types are classified in WAC 222-16-030 (updated in 2006) with field verification, or an alternate system that considers factors listed in WAC 365-190-130(4)(f)(iii). See http://www.dnr.wa.gov/forest-practices-water-typing to use Washington State Department of Natural Resources (DNR)'s stream typing system. Establish buffers to maintain no net loss of riparian ecosystem functions. Designate areas that risk contaminating or harming shoreline resources including tidelands and bedland suitable for shellfish harvest, kelp and eelgrass beds and forage fish spawning areas.	Do you designate waters of the state as FWHCAs? ☐ Yes ☐ No ☐ N/A Location in Text Do your regulations protect waters of the state? ☐ Yes ☐ No ☐ N/A Location in Text:
ANADROMOUS FISHERIES Policies and regulations for protecting critical areas give special consideration to conservation or protection measures necessary to preserve or enhance anadromous fisheries. RCW 36.70A.172(1) is the requirement and WAC 365-195-925 (updated in 2000) lists criteria involved. This requirement applies to all five types of critical areas. WAC 365-190-130(4)(i) recommends sources and methods for protecting fish and wildlife habitat conservation areas, including salmonid habitat. Counties and cities may use information prepared by the United States Department of the Interior Fish and Wildlife Service, National Marine Fisheries Service, the Washington State Department of Fish and Wildlife, the State Recreation and Conservation Office, and the Puget Sound Partnership to designate, protect and restore salmonid habitat. Counties and cities should consider recommendations found in the regional and watershed specific salmon recovery plans (see the Governor's Salmon Recovery Office webpage and the Puget Sound Partnership's Salmon Recovery webpage). Land Use Planning for Salmon, Steelhead and Trout: A land use planner's guide to salmonid habitat protection and recovery (October 2009) is an excellent resource. The Washington State Recreation and Conservation Office (RCO) website includes information on salmon recovery efforts.	Do your regulations give special consideration to anadromous fisheries? ☐ Yes ☐ No ☐ N/A Location in Text:
REASONABLE USE EXCEPTIONS The Critical Areas Ordinance (CAO) allows for "reasonable use" if the CAO would otherwise deny all reasonable use of property. Reasonable use provisions should limit intrusions into critical areas to the greatest extent possible. RCW 36.70A.370 (1991). Common exemptions include emergencies, remodels that do not further extend into critical areas, surveying, walking, and development that has already been completed with critical areas review under a previous permit. See Critical	Do you have reasonable use provisions? ☐ Yes ☐ No Location in Text:

<i>Areas Handbook, Chapter 3: Structuring Critical Areas Regulations, p.9 (Updated June, 2018).</i>	
AGRICULTURAL ACTIVITIES NOT UNDER VSP (COUNTIES ONLY) Critical areas regulations as they specifically apply to agricultural activities in counties or watersheds not participating in the Voluntary Stewardship Program (VSP) have been reviewed, and if needed, revised pursuant to RCW 36.70A.130. RCW 36.70A.710(6) "Agricultural activities" means all agricultural uses and practices as defined in RCW 90.58.065. VSP Counties After watershed work plan approval, VSP counties are encouraged to reference and describe their participation in the program within their critical areas development regulations (WAC 365-196-832). See Critical Areas Handbook, Chapter 5: Protecting Critical Areas in Natural Resource Lands (Updated June, 2018).	Did you review your regulations as they apply to agricultural activities? ☐ Yes ☐ No ☐ N/A Location in Text:
FOREST PRACTICES APPLICATION REGULATIONS <i>If applicable, regulations for forest practices have been adopted: RCW 36.70A.570</i> (adopted in 2007). RCW 76.09.240, amended in 2011, requires many counties over 100,000 in population, and the cities and towns within those counties to adopt regulations for forest practices. These are often included in clearing and grading ordinances.	Have you adopted forest practices regulations? ☐ Yes ☐ No ☐ N/A Location in Text:
GOOD IDEAS Non-regulatory measures to protect or enhance functions and values of critical areas may be used to complement regulatory methods. These may include: • public education • stewardship programs • pursuing grant opportunities • water conservation • joint planning with other jurisdictions and non-profit organizations • stream and wetland restoration activities • transfer of development rights No net loss of critical area functions and values is a recommended approach for development regulations in WAC 365-196-830(4). If development regulations allow harm to critical areas, they should require compensatory mitigation of the harm.	Are you using non-regulatory measures to protect critical areas? ☐ Yes ☐ No Location in Text: Do your regulations address no net loss and require compensatory mitigation? ☐ Yes ☐ No Location in Text:

Monitoring and adaptive management is encouraged in WAC 365-195-905(6) to improve implementation of your regulations. See Commerce’s Monitoring chapter in the updated Critical Areas Handbook (June 2018).	Do you have a monitoring and adaptive management program for your CAO? ☐ Yes ☐ No Location in Text:
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