

**City of Poulsbo
Critical Areas Ordinance Update
City Council Adoption Document**



May 2007

**Prepared by: City of Poulsbo Planning Department
19050 Jensen Way NE, Poulsbo WA 98370**

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1. Introduction

1.1. Purpose of this Document

This adoption document has been prepared by the City of Poulsbo Planning Department to assist the City Council in reviewing the draft Critical Areas Ordinance (CAO) and determining the final revisions prior to adoption. It describes how the ordinance will be in compliance with the Washington State Growth Management Act requirements and the City Comprehensive Plan. The document describes how Best Available Science (BAS) was used to map and determine appropriate protection for the City's identified critical areas. This adoption document also addresses many of the comments presented to City Council over the last year, although this document is not intended as a full response to all comments received.

1.2. Organization of Adoption Document

This adoption document is organized to address each critical area element. An introduction provides an explanation or definition of the critical area and its general extent or location within the City, followed by an assessment of how the policies and critical area regulations contained in the Draft Critical Areas Ordinance include and meet BAS recommendations. Analysis from the Fishman BAS report is incorporated into this assessment. A conclusion at the end of each element summarizes findings of the assessment and makes a conclusion that the particular section of the CAO being discussed does, or does not, meet the requirements of BAS. If the conclusion is that the section does not meet these requirements, staff makes language recommendations to further strengthen the protection of that specific critical area function and value to meet BAS criteria.

The adoption document has been prepared by the Poulsbo Planning Department to assist the Council in reviewing the draft critical area regulations and adopting the proposed regulations. However, the City of Poulsbo takes a comprehensive view of critical area protection, and there are several programs and efforts managed by other City departments that serve to protect and enhance critical areas. For example, the Parks Department manages acquisition and inter-agency coordination of parks and natural open space areas, and the Public Works & Engineering Departments administer stormwater regulations and manage capital improvement projects. These other programs are described in more detail in Chapter 8 of this report.

An annotated bibliography is included in the Fishman Report. Additionally, staff has included an annotated bibliography for the Adoption Document as Appendix A. This bibliography includes all sources, scientific and non-scientific referenced in this document.

This adoption document also includes an evaluation of the City's compliance with the procedural criteria (WAC 365-195-900 through 925) for best available science in Appendix B. Included with the procedural review in Appendix B, is the CAO Best

Available Science Bibliography which identifies the sources used by the City in the CAO update. This bibliography includes both the scientific sources identified by staff and those included in the BAS Report.

1.3. GMA Requirements for Best Available Science

The Washington State Growth Management Act (GMA) requires every county and city to adopt policies and development regulations that designate and protect critical areas [RCW 36.70A.060(2)]. Critical areas are defined in RCW 36.70A.030(5) as:

- a) Wetlands
- b) Areas with a critical recharging effect on aquifers used for potable water
- c) Frequently flooded areas
- d) Geologically hazardous areas
- e) Fish and wildlife habitat conservation areas

The City Council adopted a Critical Area Ordinance (CAO) under the Growth Management Act (GMA) in 1994. The regulations were based on the City's understanding of GMA and requirements to protect environmentally sensitive areas.

In 1995 the State Legislature added a new section to the GMA to clarify the State's goals and policies for protecting the functions and values of critical areas. The Department of Community, Trade and Economic Development (CTED) states that "[w]hile the GMA does not set specific State or regional development standards for critical areas protection, the statute is clear that local governments must include the "best available science" when designating and protecting them."¹ This opinion is not consistent with the Central Puget Sound Hearing Board's (Hearings Board) opinions and decisions. According to the Hearings Board, [t]he language of RCW 36.70A.172 states: "shall include best available science in developing policies and development regulations", this is interpreted by the Board as not mandating any substantive outcome or product, but rather requiring jurisdictions to make the best available science a part of their process of developing policies and development regulations to protect the functions and values of critical areas."²

In the HEAL decision, the Hearings Board further stated, "[t]he Board interprets the legislature's intent to be that counties and cities include the best available science in their process of developing critical area regulations, so that this information can be considered before any legislative action is taken."³ The Hearings Board further opined "[t]he GMA required the Board to give deference to a local government's choice of scientific data."⁴ Finally, in the HEAL case, the Hearings Board "found that the City took evidence and included it in the record. HEAL presented evidence contrary to the evidence relied upon by the City. The Hearings Board properly concluded it could not displace the City's

¹ *Citations of the Best Available Science for Designating and Protecting Critical Areas*, Washington State Office of Community Development, July 2001. See also RCW 37.70A.172.

² Central Puget Sound Growth Management Hearings Board (CPSHB): HEAL, 6312, FDO, pg. 19

³ *Ibid*, pg. 20.

⁴ *Ibid*, pg. 21

judgment about which science the City would rely upon as the best available science. The Hearings Board rejected the idea that the statute required a particular substantive outcome of product. Instead, the legislature left the cities and counties with the authority and obligation to take scientific evidence and to balance the evidence among the many goals and factors to fashion locally appropriate regulations based on the evidence, not on speculation and surmise”.⁵

Given the Hearings Board’s opinions in the HEAL decision; CTED’s perspective is now slightly different than that cited above. “While science is not the sole criterion to be used in developing critical area policies and regulations, the Legislature singled out science for special mention. Rather than imposing any particular statewide standard, the Legislature opted to defer to local decision making when determining how to “include” the best available science.”⁶

The Washington State Office of Community Development (OCD) is responsible for adopting administrative rule guidance to assist cities and counties with the inclusion of best available science in land use policies and regulations (WAC 365-195-900 through 925). The procedural criteria include:

- 1) Assessment criteria to determine what information qualifies as best available science;
- 2) Recommendations for where local governments can obtain best available science;
- 3) Criteria to demonstrate that best available science has been included in the development of critical area policies and regulations;
- 4) Criteria to address inadequate scientific information; and
- 5) Criteria to demonstrate “special consideration” for the conservation and protection of anadromous fish.

The City’s compliance with the procedural criteria (WAC 365-195-900 through 925) is found in Appendix B of this report.

1.4. Compliance with Best Available Science (BAS)

The City has made the following efforts to comply with BAS requirements:

1.4.1. The BAS Report

The following report is the City’s best available science on stream resources and shows the City’s commitment and “special consideration” for protection of anadromous fisheries.

The City of Poulsbo, Washington, Report on Best Available Science and Recommended Protection Measures for Fish and Wildlife Habitat, Fishman

⁵ Central Puget Sound Growth Management Hearings Board (CPSHB): HEAL, 6312, 10/4/01, Remand Order, pg. 6 & 7.

⁶ *Critical Areas Assistance Handbook: Protecting Critical Areas Within the Framework of the Washington Growth Management Act*, Washington State Department of Community Trade and Economic Development, November 2003

Environmental Services, LLC, 434 NW Sixth Avenue, Suite 304, Portland Oregon 97209, with Buell and Associates, Inc, April 2003.

The report includes an Annotated Bibliography. This bibliography includes some of the references cited in the State list of BAS citations published by OCD in 2002 (*Citations of the Best Available Science for Designating and Protecting Critical Areas*). In addition, the bibliography includes other scientific sources that meet the test of BAS and one or more of the criteria included in WAC 365-195-905. The Annotated Bibliography fulfills the State's BAS requirements for using scientific expertise and a valid scientific process to provide reliable information useful in understanding the consequences of developing policies and regulations that will effectively protect Poulsbo's critical areas.

The Annotated Bibliography complies with procedural criteria WAC 365-195-905 through 910. Staff has, by way of this "adoption document", entered other scientific sources into the record to support the decision of the Poulsbo City Council. These sources also meet the requirements of BAS and therefore constitute appropriate science upon which the City Council may decide to base its decisions.

1.4.2. GIS Mapping

The draft CAO includes maps that depict, in a general way, the location of critical areas within the City and its associated UGA. The draft CAO states at page 2, "...the City of Poulsbo Critical Areas Maps *are approximate and shall be used as a general guide only for assistance* of property owners and city administrators. The type, extent and boundaries shall be determined in the field by a qualified specialist or specialists according to the requirements of this Chapter." (emphasis added)

The CAO Maps were updated in August of 2003 by City staff in consultation with the appropriate agencies. Because the maps were drafted in 2003, there are a number of additional updates that need to be made prior to final adoption. The maps are not anticipated to be significantly different as they will be generated from the same base information. The primary change will be the inclusion of Poulsbo Creek, which has not previously been mapped as a stream. This change is discussed in greater detail in Chapter 3. The revised maps will be included in the final ordinance package.

1.4.3. Comprehensive Plan Policy amendments (2004)

The City's Comprehensive Plan is the guiding policy document for managing growth and development within the City and its associated UGA. The appropriate goals and policies from the Comprehensive Plan are included, where relevant, under the discussion on each section of the CAO.

In 2004, the City Council amended the Natural Systems Element of the Comprehensive Plan to include the following goal and policy language:

Natural Systems Goal 1: To utilize the best available science to identify, protect and preserve the City's biological resources, with special consideration and attention to the sensitive, rare, threatened or endangered species of plant and wildlife and their habitats, and to work towards a balance between nature and human development.

Natural Systems Policy 5: The City shall utilize best available science for purposes of designating and protecting geological hazardous areas.

Natural Systems Policy 10: The City shall utilize best available science for purposes of designating and protecting wetlands.

Natural Systems Policy 11: The City shall utilize best available science for purposes of designating and protecting fish and wildlife habitat areas.

Natural Systems Policy 15: The City shall utilize best available science for purposes of designating and protecting biological resources.

Natural Systems Policy 18: The City shall utilize best available science for purposes of designating and protecting hydrological resources and water quality.

These goals and policies have been used as guides in the preparation of the City's Draft Critical Areas Ordinance. There are a number of policies included throughout the document which reflect outdated science and methods. Staff has identified these policies and has docketed them for revision during the 2007 Comprehensive Plan update. While some policies are out of date and may reflect old buffer requirements, staff has determined that the policies above which require the use of BAS supersede the older policies, and further that the 2004 amendments authorize the City to adopt the proposed regulations which utilize BAS at this time.

1.4.4. The Adoption Document

This document is intended to provide the City Council with a scientific basis for the adoption of the Critical Areas Ordinance. While this document is not intended as BAS, it does summarize the City's use of scientific sources and includes this background for City Council's consideration as the City moves forward in discussing and adopting the final draft of the CAO.

2. WETLANDS

2.1. Introduction

In designating wetlands for regulatory purposes, jurisdictions are required to use the definition of wetlands in RCW 36.70A.030(20):

“Wetland” or “wetlands” means areas that are inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from 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 may include those artificial wetlands intentionally created from non-wetland areas created to mitigate conversion of wetlands.”

The City’s Draft CAO will amend the definition of wetlands contained in the City’s 1994 Comprehensive Plan to comply with this requirement.

2.2. Assessment of Policies and Regulations

2.2.1. Comprehensive Plan Policies

Natural Systems Goal 1: To utilize the best available science to identify, protect and preserve the City’s biological resources, with special consideration and attention to the sensitive, rare, threatened or endangered species of plant and wildlife and their habitats, and to work towards a balance between nature and human development.

Natural Systems Policy 10: The City shall utilize best available science for purposes of designating and protecting wetlands.

Hydrology Policy 2: All development traversed by a water course such as a drainage way, stream or developments that contain a wetland shall prohibit all kept animals by fence or other barrier a distance of at least 40 feet from the water course or wetlands. Whatever barrier is utilized it must not prohibit wildlife from the water course or wetlands.

Hydrology Policy 7: Developments traversed by a water course such as a drainage way or stream, or developments which include a delineated wetland as determined by National Wetlands Inventory, or wetland biologist shall provide a storm water easement or drainage right-of-way to the City. If the development proposal is deemed to have any water courses or wetlands a detailed biological study by a qualified biologist will be required. If, through the study, it is determined a significant biological resource exists, the study will recommend that an appropriate easement must stipulate a specified distance of not less than 40 feet of undisturbed habitat on each side of the drainage course or surrounding the wetlands. If the drainage course is not of biological concern then 20 feet on each side of the water course shall be left undisturbed except

for normal maintenance or landscaping. In any circumstance, best management practices will be employed to maintain the area.

Hydrology Policy 16: The City of Poulsbo shall establish non-point pollution controls which apply to critical areas such as sensitive shellfish rich shorelines and wetlands.

Natural Resource Policy 7: Wetlands shall be preserved as open space and adjacent lands should only be used for recreational or other low impact use, as required in the Critical Areas Ordinance.

Biological Resource Policy 6: In accordance with Federal and State regulations, the City will adopt a No Net Loss goal, define regulated wetlands, provide for a method of delineating wetlands, provide standards for buffer zones, and provide a method of categorizing wetlands.

Natural Systems Goal 1 and Policy 10 are the primary guiding principles used to guide the development of the wetland chapter of the CAO. Biological Resource Policy 6 is implemented through the wetland chapter of the Draft CAO which provides for the method of delineation, categorization and protection of wetlands. Hydrology Policy 16 is currently implemented through both stormwater and buffer requirements which prevent the sheet flow of runoff in to wetland areas. Natural Resource Policy 7 is implemented through the protections on wetlands and their buffer areas. Wetland buffers allow for only very limited uses in the perimeter of wetlands.

Hydrology Policies 2 and 7 policies have been docketed for review during the 2007 Comprehensive Plan update as they reflect the old buffer width requirements for wetlands.

2.2.2. Mapping

The City's wetland mapping identifies general locations of wetland areas for planning purposes, but the large scale mapping is too imprecise to record the location of wetlands on specific sites. The City's most recent wetland mapping is the result of combining the National Wetlands Inventory, hydric soils maps from the U.S. Department of Agriculture, and wetlands identified and delineated through the development review process.

2.2.3. Classification

Poulsbo's draft CAO uses the Department of Ecology's new *Wetland Rating System for Western Washington* (August 2004). While Ecology's new rating system is less predictable than the old system used by the City because wetland functions are considered in the rating and no two wetlands are identical in terms of function, the City believes this updated system provides for more flexibility in assigning buffer widths to differing classes of wetlands.

2.2.4. Development Regulations:

The City has based the proposed development regulations for wetlands on the State Department of Ecology buffer alternative 3.¹ The draft CAO does not include the portions of alternative 3 that relate to land uses that have low and moderate impacts as the permitted uses within the City are considered to be high impact land uses. The following subsections more specifically address the development standards for wetlands.

2.2.4.1. Delineation and Rating of Wetlands

The City's wetland mapping indicates general locations and patterns of wetlands in the City, but it is too general for identifying wetlands on specific sites. The critical area regulations specify that critical areas are to be identified by criteria versus mapping because of the approximate nature of City mapping². The City requires site-specific wetland delineations by qualified professionals to confirm wetland boundaries and wetland classifications. City regulations require an independent peer review of wetland delineations to confirm delineation boundaries and provide an objective determination process.

Poulsbo requires wetlands to be identified and delineated using the *Washington State Wetlands Identification and Delineation Manual*, (March 1997), adopted by the State Department of Ecology (Ecology Publication #96-94), consistent with RCW 36.70A.175.

Wetlands are rated and classified using the Department of Ecology's *Washington State Wetland Rating System for Western Washington, 2004*, or as amended hereafter. These ratings and classifications are for the purpose of establishing wetland buffer widths, wetland uses and replacement ratios for wetlands.

2.2.4.2. Wetland Impact Avoidance

The draft CAO requires development to first avoid wetland impacts, then minimize impacts, and lastly mitigate or compensate for impacts to wetlands and wetland buffers.³ This mitigation sequence is consistent with federal and State agency guidelines including the Clean Water Act Section 404(b)(1) and the State DOE Model Code. The City's administration of this provision during development review reduces the number and extent of proposals with wetland impacts.

2.2.4.3. Wetland Buffer Width Standards

Wetland buffer width standards recommended by Ecology and other BAS sources presume the existence of a relatively intact native vegetation community which is adequate to protect wetland functions and values. If existing buffer vegetation is

¹ Wetlands in Washington State - Volume 2: Guidance for Protecting and Managing Wetlands, Appendix 8-C. Granger, T., T. Hruby, A. McMillan, D. Peters, J. Rubey, D. Sheldon, S. Stanley, E. Stockdale. April 2005. Washington State Department of Ecology. Publication #05-06-008. Olympia, WA. Page 4.

² Draft CAO Section 16.20.115(E)

³ Draft Critical Areas Ordinance, Section 16.20.240, pg 35.

inadequate (i.e. lack of vegetative cover or dominated by invasive plant species), then buffer widths should either be increased or enhancement of buffer vegetation with native trees/shrubs should be required.

It should be noted that buffer widths are only one tool to protect and maintain functions of wetlands. The City's strict standards for runoff and erosion control are likely to be more effective than buffers in controlling sedimentation impacts. The City's stormwater regulations are also important to protecting and ensuring water quality. The majority of surface stormwater goes into constructed stormwater treatment systems before being discharged to the wetland or buffer areas, thereby reducing the need for larger buffer widths to remove sediments and pollutants.

It has also been shown that the relationship between buffer widths and effectiveness is logarithmic; after a certain buffer width has been established, incremental increases provide a decreasing amount of extra protection. For example, Wong and McCuen (1982) indicates that 90% of sediment removal can be accomplished within the first 100 feet of a riparian buffer, but an additional 80 feet of buffer is needed to remove just 5% more sediment. Similar findings included in the *DOE – Volume 2 Protecting and Managing Wetlands*⁴ further support that buffer widths affect the effectiveness of wetland buffers. This guidance indicates that a buffer of 33 feet will remove approximately 60% of sediment and pollutants, while it takes a buffer of approximately 150 feet to remove 75%, and a buffer of 660 feet to remove 90% or more of the sediment and pollutants.

2.2.4.4. Wetland Buffer Averaging

Poulsbo's draft critical area regulations allow for buffer averaging of the recommended minimum wetland buffer width requirement for Category I, II, and III wetlands. The code allows the standard buffer width to be reduced by a maximum of 25%. Proposals for buffer averaging are reviewed on a case-by-case basis. The code includes several provisions to minimize the degree of buffer averaging and to ensure that critical area functions are protected, including: 1) the wetland contains variations in sensitivity due to the existing physical characteristics of the wetland or buffer that support the proposed averaging; 2) there is no net reduction in the total buffer area; 3) averaging would not impact wetland functional values; and 4) mitigation/revegetation may be required.⁵

In administration of the code, development proposals which include buffer averaging shall be required to demonstrate that the proposed averaging is supported by the existing physical characteristics of the wetland or buffer. Additionally, a functional analysis must be provided to demonstrate the proposal would not decrease wetland or buffer functions. Revegetation or enhancement of buffers is required, particularly if buffers have a predominance of invasive plant species. Enhancement of buffers with native tree and shrub species adds a multi-story plant canopy providing increased shade, detrital input, and insect fall. The buffer enhancement required with buffer averaging proposals can increase some buffer functions over standard buffer/setbacks without revegetation.

⁴ *Wetlands in Washington State Volume 2 – Protecting and Managing Wetlands*, DOE, April 2005

⁵ Draft CAO, Section 16.20.230(F), pg. 30.

Buffer averaging proposals shall be reviewed according to code criteria that include a finding that the proposal would not impact wetland functional values. Best available science information on a specific site is reviewed on case-by-case basis. Buffer width reduction of 25% is consistent with scientific research that suggests wetland buffers should not be reduced by more than 50%, and in no case shall a buffer be less than 25 feet in width.⁶

2.2.4.5. Wetland Mitigation Requirements

Compensatory mitigation is typically required for impacts that are allowed to occur in wetlands and/or their buffers. As discussed in the above section for Wetland Impact Avoidance, compensation for wetland impacts is required only after it can be demonstrated that wetland losses are necessary and unavoidable.

According to a King County's BAS Review, there are no scientific studies that identify empirically determined mitigation ratios. Functional replacement is difficult and requires extensive training, information gathering and monitoring. Therefore, replacement ratios are commonly based on the wetland category, assuming higher rated wetlands provide greater wetland functions, and larger mitigation areas are then necessary to compensate for lost functions.

Poulsbo's Draft Critical Area Ordinance includes requirements for wetland creation and/or restoration as mitigation for wetland impacts. Replacement ratios are 6:1 for Category 1 Forested; 4:1 for other Category 1 wetlands; 3:1 for Category II wetlands; 2:1 for Category III wetlands and 1.5:1 for Category IV wetlands. Mitigation replacement and restoration requirements for Category I Natural Heritage Site, Bog and Estuarine wetlands are determined on a case by case basis.⁷

The Department of Ecology's study of wetland mitigation projects⁸ indicates that most mitigation has resulted in loss of wetland acreage, wetland types and wetland functions. The uncertainty of the results of mitigation supports requiring higher replacement ratios. Mitigation ratios are based on known failures of compensatory mitigation, to compensate for temporal loss of functions, and designed to compensate for historic loss of wetlands. Studies of the success of mitigation projects suggest that replacement ratios based on mitigation success should be between 3:1 and 1.25:1. Poulsbo's proposed wetland replacement and creation mitigation ratios are well within the acceptable range of BAS.

To ensure adequate mitigation or compensation of wetland impacts, Poulsbo's draft critical area ordinance requires in-kind replacement and on-site mitigation unless specific criteria is met demonstrating that off-site mitigation will provide a better result. To increase the success of mitigation replacing impacted wetlands and functions, the City requires submittal of detailed mitigation plans (including grading plans, planting plans and schedule, construction timing and notes, soil

⁶ MacMillan, 2000

⁷ Draft Critical Areas Ordinance, Section 16.20.240, Table 3, pg. 38.

⁸ Washington State Wetland Mitigation Evaluation Study, February 2002.

amendments, maintenance requirements and performance standards), and post-construction monitoring reports to identify and correct design problems.⁹

The City concludes that existing mitigation ratios are in the range of recommendations of best available science and the code includes adequate provisions to ensure successful construction and monitoring of compensatory mitigation.

2.3. Outstanding Issues

2.3.1. Non-Regulated Wetlands

The City's draft CAO proposes to exempt from regulation those wetlands less than or equal to 1,000 square feet if the wetland is not associated with a riparian corridor, is not part of a wetland mosaic, or does not contain habitat identified as essential for local populations of priority species identified by the Washington State Department of Fish and Wildlife.¹⁰ Comments submitted by the Suquamish Tribe¹¹ state that

“Although the values and functions provided by small isolated wetlands may seem marginal when considered individually, cumulatively and especially at the regional and watershed scale, these wetlands provide significant ecological, hydrological, and water quality functions. If the City retains this exemption, it must consider the resulting potential cumulative effects.”

Recently, the Hearings Board remanded a similar provision adopted by Kitsap County, as it did not address the cumulative impact of the loss of wetland function and value.¹² It may be worthwhile to note that the non-regulated provisions remanded back to Kitsap County included isolated Category III wetlands less than 2,500 square feet, and isolated Category IV wetlands less than 7,500 square feet. The City's provision is limited to isolated Category IV wetlands less than 1,000 square feet. Although the cumulative impact of the loss of these wetlands would be much less than if larger thresholds were used, the City has not addressed this cumulative impact as a part of the CAO process.

Staff researched this issue to determine if any guidance was provided by the State. Guidance provided by DOE regarding small wetlands states “[a] more appropriate way to deal with small wetlands would be to exempt projects from the need to avoid small wetlands. This type of exemption should still require that the loss of wetlands be compensated either directly or through an in-lieu fee program.”¹³

⁹ Draft Critical Areas Ordinance, Section 700: Special Reports, pg. 55...56.

¹⁰ Draft CAO, pg. 26.

¹¹ Alison O'Sullivan letter, March 14, 2007

¹² Central Puget Sound Growth Management Hearings Board (CPSHB): Hood Canal, 0612c, FDO. Aug. 28, 2006.

¹³ *Wetlands in Washington State Volume 2 – Protecting and Managing Wetlands*, page 14, DOE, April 2005

2.3.2. Table 3 Wetland Replacement and Re-establishment Ratios

On page 38 of the CAO, Table 3 addresses wetland mitigation ratios. The Suquamish Tribe raised the issue of allowing Category I Bog or Category I Estuarine wetlands to be filled and then recreated or re-established. The Tribe believes the City should not allow for this possibility in the ordinance because these types of wetlands are impossible to replace within a human lifetime and replacement and/or re-establishment should not be allowed.¹⁴ After reviewing this matter, staff concurs with the Tribe's comments.

2.4. Decision Point

2.4.1. Recommended Changes to the Draft CAO:

Staff recommends the following amendments to the Draft CAO:

2.4.1.1. Non-regulated Wetlands:

2.4.1.1.1. Delete the following text from CAO Section 16.20.215 (B):

~~3. Wetlands less than or equal to 1000 square feet if the wetland is not associated with a riparian corridor or is not part of a wetland mosaic, or does not contain habitat identified as essential for local populations of priority species identified by the Washington State Department of Fish and Wildlife.~~

¹⁴ Alison O'Sullivan letter, March 14, 2007

2.4.1.1.2. Amend Section 16.20.230 (B), Table 1 as follows (inserted text shown with underlines):

Wetland Category and Characteristics	Buffer Width Standard	Other Development Standards
Category I		See subsections E, F, G and H below relating to buffer reduction, averaging, decreased buffer provisions and increased buffer provisions.
Natural Heritage Wetlands	250 feet	
Bog	250 feet	
Estuarine	200 feet	
Coastal Lagoon	200 feet	
Habitat Score from 29 to 36 points	300 feet	
Habitat Score from 20 to 28 points	150 feet	
Category I wetlands not meeting any of the criteria above with a habitat score less than 20 points	100 feet	
Category II		
Estuarine	150 feet	
Habitat Score from 29 to 36 points	300 feet	
Habitat Score from 20 to 28 points	150 feet	
Category II wetlands not meeting any of the criteria above with a habitat score less than 20 points	100 feet	
Category III		
Habitat Score from 20 to 28 points	150 feet	
Category III wetlands not meeting any of the criteria above with a habitat score less than 20 points	80 feet	
Category IV	50 feet	
Small Isolated Wetlands		
<u>Wetlands less than or equal to 1000 square feet provided that the wetland is not associated with a riparian corridor or is not part of a wetland mosaic, or does not contain habitat identified as essential for local populations of priority species identified by the Washington State Department of Fish and Wildlife.</u>	<u>No required buffer, except as needed to protect wetland functions.</u> <u>Wetland may be impacted provided that mitigation is provided to assure no net loss of critical area function. Wetland delineation and mitigation reports required. Mitigation may be provided on or off site, provided mitigation must occur within the same watershed.</u>	

2.4.1.2. Table 3 Wetland Replacement and Re-establishment Ratios

2.4.1.2.1. Amend Section 16.20.240 (D), Table 3 as follows (inserted text shown with underlines):

Table 3: Wetland Mitigation Replacement Ratios

Wetland Category	Re-establishment or Creation	Rehabilitation	1:1 Re-establishment or Creation (R/C) and Enhancement (E)	Enhancement only
All Category IV	1.5:1	3:1	1:1 R/C and 2:1 E	6:1
All Category III	2:1	4:1	1:1 R/C and 2:1 E	8:1
Category II Estuarine	Case-by-case	4:1 rehabilitation of an estuarine wetland	Case-by-case	Case-by-case
All other Category II	3:1	8:1	1:1 R/C and 4:1 E	12:1
Category I Forested	6:1	12:1	1:1 R/C and 10:1E	24:1
Category I other	4:1	8:1	1:1 R/C and 6:1 E	16:1
Category I Natural Heritage site	Case-by-case <u>Prohibited</u>	6:1 rehabilitation of a Natural Heritage site	Case-by-case	Case-by-case
Category I Bog	Case-by-case <u>Prohibited</u>	6:1 rehabilitation of a bog	Case-by-case	Case-by-case
Category I Estuarine	Case-by-case <u>Prohibited</u>	6:1 rehabilitation of an estuarine wetland	Case-by-case	Case-by-case

2.4.2. Alternatives:

- 2.4.2.1. A fee-in-lieu approach as suggested by the State would be an alternative to mitigation for impacts; however, staff has not had the time to develop such a program.
- 2.4.2.2. The City Council could alternatively regulate such isolated wetlands in the same manner as larger wetlands, by deleting the text as per 2.4.1.1.1.
- 2.4.2.3. For the reasons described above, staff is unable to support an alternative.

2.5. Conclusion

The draft CAO utilizes the Washington State Wetland Identification and Delineation Manual and the Department of Ecology's Washington State Wetland Rating System for Western Washington.

Poulsbo's wetland buffers and regulations, as recommended to be amended above, are within the range of recommendations of best available science to protect wetland functions and values.

Public testimony before the City Council addressed a number of proposed provisions in the wetland section of the draft CAO. Staff has summarized the main areas of concern and recommends the changes as described above to assure no net loss of wetland function.

2.5.1. Recommended Findings:

- 2.5.1.1. Poulsbo's wetland mapping, classification, designation and draft regulations, with the proposed revisions, have been developed with the consideration and inclusion of best available science and the method by which the City proposes to address wetland protection is compliant with the GMA.

2.5.2. Recommended Motion to adopt proposed changes:

I move to (*accept*) (accept with modifications) (deny) the staff recommended changes in Section 2.4.1 and findings in Section 2.5.1 for Section 200 of the Critical Areas Ordinance.

3. FISH AND WILDLIFE HABITAT CONSERVATION AREAS

3.1. Introduction

Fish and wildlife habitat conservation means land management to maintain species in suitable habitats within their natural geographic distribution so that isolated subpopulations are not created. This does not mean maintaining all individuals of all species at all times, but it does mean that cooperative and coordinated land use planning is critically important among counties and cities in a region.¹

Fish and wildlife habitat conservation areas include:

1. Areas with which endangered, threatened, and sensitive species have a primary association;
2. Habitats and species of local importance;
3. Commercial and recreational shellfish areas;
4. Kelp and eelgrass beds; herring and smelt spawning areas;
5. Naturally occurring ponds under twenty acres and their submerged aquatic beds that provide fish or wildlife habitat;
6. Waters of the State;
7. Lakes, ponds, streams, and rivers planted with game fish by a governmental or tribal entity; or
8. State natural area preserves and natural resource conservation areas.

Wildlife conservation areas are not presently regulated as a separate critical area in the City's Municipal Code. At present, the City utilizes wetland, shoreline and stream standards to preserve wildlife habitat functions and corridors. The City has dealt with the presence of priority species and rare ecosystems through SEPA review. This allowed for comment by the appropriate agencies and for conditions to be placed on a development permit to protect such resources. However, to comply with GMA critical area requirements, the City must now regulate these areas through the CAO.

At this time the City must revise the manner in which fish and wildlife habitat critical areas are regulated to assure that the function and value of these critical areas are maintained, and that special consideration is given to conservation or preservation measures necessary to preserve or enhance anadromous fisheries within the City.²

Poulsbo commissioned a study of the City's shoreline and primary streams: The City of Poulsbo, Washington, Report on Best Available Science and Recommended Protection Measures for Fish and Wildlife Habitat (Fishman and Buell, 2003). One of the primary objectives of the study was to collect baseline information to aid in assessing stream

¹ WAC 365-190-080 (5)

² RCW 36.70A.172

functions and processes for the purpose of formulating science-based regulatory protections consistent with the Growth Management Act (GMA).

The authors state that they used the “best available appropriate science” to develop recommendations for policy and development regulations for the urban streams and associated riparian areas in the City of Poulsbo. The authors explain that the qualifying term “appropriate” is necessary to recognize the fact that “the vast majority of scientific studies of streams and riparian function are from research on rural forest lands, whereas the watersheds and streams in Poulsbo, as in other urban areas, have been significantly altered from a natural state. For example, Dogfish Creek has been relocated numerous times and presently is being relocated to facilitate the widening of SR 305. The functions and values of urban shorelines and streams have to be considered within the context of altered and perturbed ecosystems, where human activities are the primary landscape context and are major determining factors in ecosystems dynamics”.³

3.1.1. Basin Overview

The Poulsbo watershed is defined by the convergence of two glacially formed hills and contains a series of small natural stream systems. The largest stream system in the City is Dogfish Creek. The Dogfish Creek watershed includes the main stem of Dogfish Creek, and the East and South Forks. The main stem flows in a southerly direction, draining the Big Valley area. The East Fork flows in a southwesterly direction draining the Lincoln Hill and Bond Road areas. The South Fork flows north and northwest along and adjacent to State Highway 305 and is located entirely within the existing city limits.

The South Fork is smaller in size than the other two forks; however, it drains a much more urbanized watershed, and is subject to periodic flooding. All of the creeks and small streams within the City limits drain into Liberty Bay. The watershed has no lakes, but some surface storage is provided in the large marshy area near the main stem of Dogfish Creek. The water quality of streams is generally suitable for most purposes throughout most of the year. Springs which feed Dogfish Creek are used for part of the City’s domestic water supply.

Liberty Bay and the Liberty Bay Estuary are the two major bodies of surface water in the City. Beneficial uses of surface water are listed in the Water Quality Standards for Surface Water of the State of Washington (Chapter 173-201 WAC). These include drinking water, salmonid and fish habitat; shellfish; wildlife habitat; recreation; commerce and navigation; stock and crop water. Water quality is especially important for maintaining safe drinking water and safe swimming areas, and for maintaining healthy fish, shellfish, and wildlife populations.

Although urbanization within the City limits has affected shoreline and instream habitat conditions, watershed-scale processes (especially processes occurring in the upper basin) have also affected the health of Poulsbo’s streams and shoreline areas. Many of the factors that affect habitat quality are the result of actions that extend beyond the City’s jurisdiction. Additional measures that address basin hydrology,

³ Report on Best Available Science and Recommended Protection Measures for Fish and Wildlife Habitat (Fishman and Buell, 2003), pg. 1.

sediment transport, impervious surface area, and water quality on a watershed scale will need to be explored and pursued in conjunction with neighboring jurisdictions if long-term and sustainable habitat improvements are to be achieved.

Streams in Poulsbo's urban area have all been impacted to some degree by development. Fishman and Buell identified some of the major problems occurring in the City's streams. These include:

stream constraints including blocked culverts, severe channel down-cutting, areas of moderate to severe erosion, invasive non-native vegetation, lack of spawning substrate, landscaping to creek's edge leading to potential chemical contamination, inadequate vegetative cover and lack of large woody debris.

Fishman's report includes recommendations to assist the City in improving the existing conditions along the streams and creeks running through the City. Some of these recommended efforts include:

replace culverts to allow for fish passage, develop and implement a stream channel rehabilitation program for degraded reaches in Wilderness Park and take steps to stop and reverse channel incision, implement a vegetation management plan for certain stream segments, ensure stormwater receive maximum water quality treatment and improve/enhance vegetated buffer areas.

Since the City started the Critical Areas Update process in 2003, the City has undergone a significant amount of growth. The 2006 population estimate for the City is 7,490, which is 677 more residents than in 2000.⁴ From 2003 to early 2006, the City approved 14 annexations, totaling 771.95 acres. This represents a 37% expansion in the City's acreage over the last three years. As a result of these recent annexations, in many areas, the City limits are contiguous with the UGA boundary. In these outlying areas of the City several streams exist, which were studied by Fishman but which have not been as severely impacted by urban development as Poulsbo Creek and the South Fork of Dogfish Creek. These outlying streams are impacted by the low density residential and agricultural uses presently existing.

Johnson Creek, a Type III stream, lies primarily in the unincorporated portion of the City's UGA with only the headwaters located within City limits. Bjorgen Creek is a Type III stream that flows south from the Deer Run subdivision through newly annexed land and ultimately ends up in Liberty Bay. Lemolo Creek is located just east of the UGA boundary in the Noll Road vicinity and flows south into Liberty Bay. The vast majority of these stream systems run through undeveloped or low density areas within the City or its outlying area.

The outlying streams present a regulatory challenge, as the City must balance the City's responsibility to fish and wildlife habitat conservation areas with the GMA requirements for urban development. It has been the conflict regarding this balance that has fueled much of the public comment presented to the City Council.

Poulsbo Creek is a small stream system that flows through a portion of the City known as Old Town. At present the stream is mapped only on the City's 1981 Comprehensive Storm Drain Plan; this reflects the City's understanding of this creek

⁴Populations of Cities, Towns and Counties: April 1, 2000 to April 1, 2006, OFM Forecasting, State of Washington.

until very recently. Historically, this creek has been regulated only as a drainage way, as it did not show up in any of the State stream maps, and prior conversations with The State Department of Fish and Wildlife (WDFW) had supported this conclusion.⁵ Recently, questions were raised regarding the status of the creek as a stream. Staff contacted the WDFW to determine if this creek met State criteria for regulation as a stream.

WDFW concluded that Poulsbo Creek “appears to meet the physical definition of a Type F stream and it does contain fish habitat (adequate gradient and 2-inch minus gravel streambed).” WDFW further concluded that this fork would be considered a Type F stream from 9th Avenue downstream to Liberty Bay.⁶ A Type F stream would be considered a Type 3 stream under the proposed classification system.

This stream presents a regulatory challenge, as the application of any stream buffer will cause much, if not all, of the development adjacent to this stream to become nonconforming. Although existing development provisions are generally addressed in Chapter 7 of this document, a detailed discussion is included in this chapter regarding expansions along Poulsbo Creek.

3.2. Assessment of Policies and Regulations

3.2.1. Comprehensive Plan Policies

Natural Systems Goal 1: To utilize the best available science to identify, protect and preserve the City’s biological resources, with special consideration and attention to the sensitive, rare, threatened or endangered species of plant and wildlife and their habitats, and to work towards a balance between nature and human development.

Natural Systems Policy 11: The City shall utilize best available science for purposes of designating and protecting fish and wildlife habitat areas.

Natural Systems Policy 15: The City shall utilize best available science for purposes of designating and protecting biological resources.

Biological Resource Policy 3: Encourage the enhancement of identified salmon spawning streams by retaining natural vegetation to the outer edge of the riparian habitat.

Biological Resource Policy 4: Construction around streams should employ appropriate measures to minimize erosion and subsequent siltation problems.

Biological Resource Policy 5: All riparian corridors shall be developed in a manner that maintains the integrity of wildlife habitats and insures that water quality is preserved or enhanced and that other potential problems are mitigated.

Natural Resource Policy 3: The City shall encourage the preservation and enhancement of Dogfish Creek through on-going cooperation with all interested parties, including the Washington State Department of Fish and Wildlife and the Suquamish Indian Tribe.

⁵ *Unnamed Stream (Flowing from 11th Ave, through Hostmark Apartments, & along 6th Ave to outfall at Yacht Club)*. Memo to File, Anya Funk Senior Engineering Technician. June, 6 1995

⁶ Letter from Jeff Davis, Department of Fish and Wildlife, March 22, 2007.

Natural Resource Policy 4: Any development proposals adjacent to existing fisheries or habitat must be evaluated for proper buffering from these important natural features, and for any other mitigation measures which might be necessary.

The preceding goals and policies have been utilized in the drafting of the proposed CAO Section 300 to protect fish and wildlife habitat areas throughout the City. BAS has been utilized as documented in this chapter and in the BAS Report prepared by Fishman and Buell. Development in and around such critical areas is limited and regulated to protect habitat functions within the City as discussed in the assessment of the development regulations.

3.2.2. Mapping

In 2003, the City requested the State Department of Fish and Wildlife to review a draft stream map for the City of Poulsbo. The stream map included in the draft critical areas ordinance is based on Fish and Wildlife's review and represents the City's best available science in regard to mapping streams within the City. The Stream Map is in the process of being updated at this time to include Poulsbo and Lemolo Creeks and to revise base map data. Final maps will be provided with the final ordinance package. Other than the addition of Poulsbo and Lemolo Creeks, no significant changes to the map are anticipated.

The City further utilizes the Priority Habitat and Species Maps provided by the WDFW and the Natural Heritage Program GIS Data Set provided by DNR to identify projects that may be subject to the requirements for Wildlife Habitat Conservation Areas and Areas of Rare Plant Species and High Quality Ecosystems. These maps provide only generalized information to protect these sensitive species and ecosystems and are updated by the State as more information becomes available. These maps are utilized by staff to determine when a proposal is located in an area that may contain one of these resources. If a project is located in one or more of these areas, staff would contact the appropriate agency for further assistance. The use of these mapping resources is disclosed in the classification of these critical areas.

3.2.3. Classifications and Rating

3.2.3.1. Streams

The stream mapping discussed above includes the rating or classification of all identified streams in the City (other stream systems may exist within the City that have not yet been identified or classified). Streams within the City of Poulsbo are classified according to the Washington State stream classification systems. The draft critical area ordinance utilizes the State Interim Water Typing in WAC 222-16-031 to define stream types. The State provides a conversion table for the permanent stream typing which groups streams by fish use. This stream classification system provides "special consideration" of anadromous fisheries (and all salmonid species), consistent with BAS procedural criteria WAC 365-195-925.

The City has further classified the South Fork of Dogfish Creek based on the BAS Report into the following reaches:

- A. Headwater: between the northernmost extent of the drainage north of NE Lincoln and Wilderness Park;
- B. Canyon: between the east end of Wilderness Park and SR 305;
- C. Urban/Commercial: between SR 305 (culvert south of NE Lincoln Road) and culvert north of NE Liberty Road;
- D. Lower Forested: between SR 305 culvert north of NE Liberty Road and the confluence with Dogfish Creek mainstem, north of Bond Road; and
- E. Tidewater/Estuarine: Dogfish Creek between the junction of South Fork and Liberty Bay, including commercial and recreational shellfish areas, marine riparian areas, tidewater/estuarine habitats (herring, sand lance, and smelt spawning areas, kelp, and eelgrass), and juvenile salmonid rearing and feeding areas.

The City has further classified the Johnson and Bjorgen Creeks as Stream/Riparian Corridor Conservation Areas based on the BAS Report. This designation includes those sections of Johnson and Bjorgen Creeks that are within the City of Poulsbo city limits or urban growth area.

3.2.3.2. Shorelines

The Draft CAO also designates the following shoreline areas as Fish and Wildlife Habitat Conservation areas:

- A. Saltwater Shorelines, and Lakes 20 Acres and Greater in Surface Area: Those saltwater shorelines and lakes defined as Shorelines of the State in the Shoreline Management Act of 1971 and the City of Poulsbo Shoreline Master Program, as now or hereafter amended. Shorelines include: Type 1 waters as set forth in WAC 222-16-030, (DNR Water Typing System) as now or hereafter amended; commercial and recreational shellfish areas; riparian areas (freshwater and marine), shoreline feeder bluffs, kelp and eelgrass beds; herring, sand lance, and smelt spawning areas, and juvenile salmonid migratory corridors.
- B. Lakes less than 20 Acres in Surface Area: Those lakes which meet the criteria for Type 2, 3, 4, and 5 waters as set forth in WAC 222-16-030, as now or hereafter amended. This includes lakes and ponds less than twenty (20) acres in surface area and their submerged aquatic beds, and lakes and ponds planted with game fish by a governmental or tribal authority.

3.2.3.3. Wildlife Habitat Conservation Areas

Wildlife Habitat Conservation Areas are designated based on the following criteria:

- A. Class 1 Wildlife Habitat Conservation Areas:
 - a. Habitats recognized by federal or State agencies for federal and/or State listed endangered, threatened and sensitive species which presence is documented in maps or data bases available to City of Poulsbo;
 - b. Areas targeted for preservation by the federal, State and/or local government which provide fish and wildlife habitat benefits, such as important waterfowl areas identified by the U.S. Fish and Wildlife Service; and
 - c. Areas that contain habitats and species of local importance.
- B. Class 2 Wildlife Habitat Conservation Areas:
 - a. Habitats for State listed candidate and monitored species which presence is documented in maps or data bases available to City of Poulsbo; and
 - b. Habitats which include attributes such as comparatively high wildlife density; high wildlife species richness; significant wildlife breeding habitat, seasonal ranges or movement corridors of limited availability and/or high vulnerability. These habitats may include caves, cliffs, islands, meadows, old-growth/mature forest, snag-rich areas, talus slopes, and urban natural open space.

3.2.3.4. Areas of Rare Plant Species and High Quality Ecosystems

The Draft CAO designates Areas of Rare Plant Species and High Quality Ecosystems as critical areas, according to their identification by the Washington State Department of Natural Resources through the Natural Heritage Program.

3.2.4. Development Regulations

3.2.4.1. Resource Management Area Requirements for Streams and Shorelines

Poulsbo's draft critical area ordinance proposes stream buffers as contained in Table 4: Fish and Wildlife Habitat Conservation Areas Development Standards. The area of land designed to protect fish and wildlife habitat conservation areas within the City of Poulsbo is separated into a Resource Management Area (RMA) and a RMA setback. The draft ordinance defines RMA as "an area that contains natural resource (fish and wildlife habitat) and the contiguous area that most directly influences the functions and values of the natural resource. RMA are designated by the City of Poulsbo map or description in this Chapter; descriptions

in the Chapter take precedence over map boundaries.”⁷ In other words, the RMA is an area within which land use activities are regulated for resource protection. A setback is added to the outside of the RMA to act as a regulatory transition area. Land use activities in the setback are less regulated than within the RMA.

A large body of literature focusing on resource management and policy is based on the application of resource buffers, typically forested, along shorelines and streams to protect ecological functions and values within these corridors. The presence of forested shoreline or streamside buffers can provide a number of important functions for fish and wildlife resources; however, some of the resource management literature is based on information and assumptions that are not valid or appropriate for urban systems. These formula-based forested buffer recommendations are too much of a “one-size fits all” approach to be of true value to urban areas, and they do not take into account the site-specific realities of stream geomorphology, urban development, stream channel modifications, and a host of other factors unique to the urban environment and not found in rural forested environments. They also do not consider the fact that the built environment can sometimes provide some of the desired functions of riparian areas. One example is constructed stormwater facilities that intercept and treat urban runoff before it reaches the receiving waters.

In fact, the National Research Council⁸ cautions against relying on “riparian buffer zones” as the sole Best Management Practice (BMP) for water quality improvement. Instead, the NRC advises that these buffers “should be viewed as a secondary practice or BMP of last resort that assists in field and upland conservation practices ...”

The stream buffer prescriptions generally recommended by State agencies for use by local jurisdictions originated as buffer and setback recommendations developed by the Washington Forest Practices Board for categories of stream types in non-federal forest (commercial timber) lands. The stream buffers and setbacks recommended in Management Recommendations for Riparian Areas⁹ were arrived at through a political process, which resulted in the *Forest and Fish Report*¹⁰. However, this effort to develop biologically sound and economically practical solutions that protect and improve riparian habitat is tailored to managed forest lands and not urban environments. One of the main reasons the recommendations in the above cited report are not applicable to urban areas is that the functions supplied by a stream corridor in an urban area are vastly different from the functions of stream corridors on managed forestlands.¹¹

Most of the scientific literature addresses stream buffers necessary to protect riparian functional processes in more rural, forested environments. However, there are urban conditions that limit the direct and potential functional role of stream buffers in an urban context, including: narrow buffer widths that are

⁷ Draft Critical Area Ordinance, Section 16.20.155, pg. 20.

⁸ NCR, Riparian Areas, Functions and Strategies for Management, 2002

⁹ Knutson, K. L., and V. L. Naef. 1997. Management recommendations for Washington’s priority habitats: riparian. Wash. Dept. Fish and Wildlife, Olympia. 181pp.

¹⁰ TFW, Forest and Fish Report, April 29, 1999.

¹¹ Pentec Environmental, Use of BAS in the City of Everett Buffer Regulations, 2001. Schueler, T.R., Site Planning for urban stream protection, 1995

constrained by structures and infrastructure resulting from historic development patterns, channelization and bank-hardening of streams, artificial barriers such as culverts isolate stream reaches and limit transport of woody debris, difficulty of restoring mature forests for large woody debris recruitment because of safety and land use factors, and stormwater systems that replace the pollutant removal and flood attenuation functions of buffers.

The scientific literature on stream buffers also indicates a wide range of buffer widths that are needed to effectively protect the various stream functions, and the literature is not definitive in identifying an ideal buffer width or even a minimum buffer width necessary to protect all functions. Several studies of best available science quantify the effectiveness of various buffer widths to perform specific functions. In general, studies indicate that buffers 100 to 150 feet wide protect approximately 80% of the potential functions. Buffer requirements for wildlife habitat are typically larger, on the order of 100 to 600 feet. These studies also indicate there may be a point of diminished returns where little additional stream protection is gained even with substantial increase in buffer widths. For example, Wong and McCuen indicate that 90% of sediment removal can be accomplished within the first 100 feet of a riparian buffer, but an additional 80 feet of buffer is required to remove 5% more sediment.¹² It is also important to note that these widths may only be indicative of the widths studied in the report and may not reflect recommended buffer widths.¹³

There is also a shift toward studies evaluating landscape-level alterations to watersheds. The general effects of urbanization on lowland salmonid streams in the Puget Sound region have been recently documented. While the effects of urbanization on a watershed are tied to the loss or disturbance of native riparian areas, the total impervious area in a watershed or drainage basin is also associated with stream degradation. Adverse impacts of high impervious levels include flushing of large woody debris and spawning gravels from streams. The simple application of prescriptive buffers may not be adequate to protect functions or restore urban streams because urban-induced changes to hydrology (high percentage of effective impervious area) may result in irreparable aquatic system loss.¹⁴

Riparian Functions

Specific stream RMA proposed by Fishman & Buell are based on scientific reports prepared by: Knutsen and Naef, 1997; Desbonnet et al. 1994; Budd et al. 1987; Schueler 1995; Hennings and Edge 2003; Keller et al. 1993.¹⁵ These scientific studies all meet the BAS requirement.

¹² *The Design of Vegetative Buffer Strips for Runoff and Sediment Control*. Wong, Stanley L. W., Richard H. McCuen. Annapolis, MD: Coastal Resources Division, Tidewater Administration, Maryland Department of Natural Resources. 1982.

¹³ Report on Best Available Science and Recommended Protection Measures for Fish and Wildlife Habitat (Fishman and Buell, 2003), pg. 3.

¹⁴ Ibid, page 9 and 14.

¹⁵ Summary Response to Comment Letters and Staff Recommendations for Revisions to the May 26, 2004 Draft CAO, Memo to Planning Commission et al. Poulsbo Planning Department, April 2005.

In Table 1 of the Poulsbo BAS report is a list of 13 functions found to occur within the small streams in Poulsbo. Of these, 6 of 8 functions identified in the WDFW Management Recommendations: Riparian document are included in this list. Microclimate influence was not included in the Poulsbo BAS report because the Poulsbo stream systems are not forest ecosystems. The literature on microclimate effects is focused on forest ecosystems (primarily upland timber lands). Large woody debris (LWD) function was identified for protection through prohibiting tree cutting in RMA and their setbacks.

Individual streamside or riparian areas do not necessarily provide all of the functions attributed to riparian areas, especially in urban systems. Large woody debris, for example, is not provided if there are no trees; and the functions of large woody debris are very limited in stream reaches that have been straightened and constrained (such as the South Fork of Dogfish Creek), and where such material in the stream would create a hazard by blocking culverts or otherwise promoting flooding of developed urban areas. Establishment and protection of streamside management areas and buffers through regulation should be one component of a multiple-component program to protect and improve fish and wildlife resources.¹⁶

The Poulsbo BAS report and the draft CAO recognize the importance of setbacks and buffers within the context of a larger program for fish and wildlife protection. The Poulsbo BAS report identifies specific functions needing protection in each stream reach, establishes a resource management area and buffer adequate to protect those functions that streamside management areas can influence, and identifies additional actions and programs that will address functions not provided or protected by setbacks and buffers alone. In other words, Poulsbo proposes an action oriented approach to resource protection versus a passive one dependent only on buffers.

The City's Draft CAO utilizes the BAS report recommendations for RMA width requirements for South Fork of Dogfish, Bjorgen, and Johnson Creeks. The widths proposed for shorelines and other streams were initially drafted based on proposed Kitsap County buffers which have since been revised. A significant amount of public comment has been received regarding the proposed buffer widths for these critical areas. These comments are addressed as Outstanding Issue 3.3.2 below.

¹⁶ NCR 2001; Schueler 1995; Wenger and Fowler 2000

3.2.4.2. Resource Management Area Requirements for Wildlife Habitat Conservation Areas, Rare Plant Species and High Quality Ecosystem

The scientific literature regarding wildlife habitat need is complex, but some generalizations can be made:¹⁷

- In general, forest vegetation provides more diverse wildlife habitat compared to non-forest vegetation;
- Wider (larger) wooded buffers provide essential habitat for more sensitive species, such as neotropical migratory song birds;
- Narrower vegetated buffers are used by edge species;
- Some native wildlife species, such as neotropical migratory birds, have an aversion to development; others adapt to urban habitat and do well;
- Urban and suburban areas are ecosystems for humans and wildlife;
- Any width buffer or vegetated area provides habitat and travel corridor benefits for a variety of wildlife.

In urban areas, stream corridors can be important connecting habitat between larger habitat patches, providing cover, food, roosting and other wildlife functions. Recent research on urban stream corridors in Portland, Oregon, however, has suggested that wooded streamside areas less than 200 feet in width are dominated by European starlings, and do not provide essential habitat for more sensitive bird species.¹⁸ The Portland study did conclude, however, that these narrower areas do provide important stop-over habitat for migratory birds. Urban street trees also provide important feeding and resting habitat for more sensitive migratory birds.

The ideal condition in urban areas is to have larger habitat patches connected by intact corridors that can be used by a variety of wildlife. Along the South Fork Dogfish Creek corridor, two larger patches of habitat exist that are publicly-owned land: Wilderness Park just below the headwater reach, and Fish Park alongside the Tidewater/Estuary reach. Wilderness Park is an approximately 11.5 acre wooded canyon. Fish Park is approximately 13 acres of shoreline and wetland habitat. These are large enough areas to support viable populations of a variety of native wildlife species, and efforts to enhance habitat quality by increasing the abundance and diversity of native shrub and groundcover vegetation is occurring at the present time which will help improve wildlife diversity.¹⁹ The wooded area along the South Fork of Dogfish Creek in the Lower Forested and Tidewater/Estuary reaches also provides wooded habitat, and Nelson Park along Liberty Bay has approximately 600 feet of wooded shoreline. The City of Poulsbo is proud of

¹⁷ Wenger and Fowler 2000; Schueler 1995; Desbonnet et al. 1994; Klapproth and Johnson 2000; Hennings and Edge 2003; Knutson and Naef 1997 and DeStafano and DeGraaf 2003.

¹⁸ Hennings and Edge 2003

¹⁹ Hennings and Edge 2003

its active record of purchasing, improving and maintaining key areas throughout the City that provides quality wildlife function and value.

The recommendations made in the Poulsbo BAS report are focused on protecting and improving existing wildlife habitat patches and the connecting corridors between them along Poulsbo's urban streams. Even the most highly impacted part of the South Fork Dogfish Creek, the Urban/Commercial reach, provides usable corridor habitat in the form of willow thicket vegetation, which maintains the connectivity from the headwater to the estuary. It is important to consider the urban/suburban areas of Poulsbo as part of the ecosystem within which fish and wildlife live, and use this framework to protect and manage natural resources within the City and its UGA.

Protection of upland wildlife habitat conservation areas within the City is implemented during the development review process. Development proposed within 300 feet of locations identified as Class 1 Wildlife Habitat Conservation Areas are required to provide a habitat management plan. Development within 300 feet of a Class 2 Wildlife Habitat Conservation Area may also be required to submit a habitat management plan. The use of habitat management plans to determine buffers and other development standards to protect wildlife habitat conservation areas and areas of rare plant species and high quality ecosystems is consistent with the CTED Model Ordinance.²⁰

The City uses this site specific reporting method for areas which contain priority species in combination with other wetland, shoreline and stream protections to protect wildlife habitat. Riparian and wetland habitat zones are considered to be among the richest zones for aquatic organisms, mammals, and avian species (Clark 1977, Williams and Dodd 1979). Because wetland and riparian habitats exhibit an "edge effect," due to overlapping habitats, more niches are found in these areas than in any other habitat type. By protecting these critical areas, we provide the greatest benefit toward protecting wildlife habitat areas.

3.2.4.3. Resource Management Area Development Standards

Provisions are provided to increase, decrease or conditionally alter RMA widths. These provisions allow for the Planning Director to administratively increase buffer widths where there are endangered or threatened species, when a Habitat Management Plan concludes a larger buffer is needed, or when such areas are also subject to a landslide or erosion hazard area. Reductions are allowed if the WDFW concurs that conditions are sufficient to protect the affected habitat, and that such reductions are limited to 25% of the required RMA, with the provision that provided reductions may not reduce RMA widths below 25 feet. Conditional alterations of RMA are permitted for water dependent uses when no other reasonable or practical alternative location exists. Such reductions may only be made for development that conforms to the City's Shoreline Master Program.

²⁰ *Model Code Recommendations for Designating and Protecting Critical Areas*, Washington State Office of Community Development 2002

RMA are further required to be maintained in at least their current condition, or enhanced through planting of indigenous vegetation. Refuse may not be placed in a RMA. Where wetlands or geologically hazardous areas are present on a site, the more restrictive buffer or setback applies and all development standards of the overlapping critical areas are applicable.

3.2.4.4. Other Development Standards

The other development standards section includes development requirements for specific uses and proposed impacts consistent with the CTED Model Ordinance Recommendations.²¹ These include standards for stream crossings, stream relocations, use of pesticides, fertilizer and herbicides, subdivisions and land use permits, agriculture, the Poulsbo Shoreline Master Program, trails and trail related facilities, utilities, and bank stabilization.

3.3. Outstanding Issues

3.3.1. Does the City's Stream Characterization Study Constitute BAS?

The research conducted by Mr. Fishman on Dogfish, Johnson and Bjorgen Creeks meets the requirements of BAS as do the RMA and associated setbacks recommended for each of the above named creeks. Mr. Fishman's stream characterization reports, and the recommendations contained therein, are based on careful identification and analysis of these stream systems. A follow up report on Johnson Creek submitted by local property owners, which was also conducted by Mr. Fishman, largely confirms the recommendation contained in the BAS report for Johnson Creek. The later report divides the stream into reaches (much the same as was done for the South Fork of Dogfish Creek in the BAS Report) and provides reach specific recommendations which refine the recommendation in the BAS report.

Some members of the public may disagree with the City's BAS Report, based on their opinions about what constitutes BAS and to what degree should certain environmental features within the City and UGA be protected. The City, however, has a responsibility to not only protect critical area functions and values, but also to accommodate its population allocation, support and encourage urban growth, discourage sprawl and encourage affordable housing and family wage paying jobs. The City simply does not have the luxury of ignoring the entire range of responsibilities it has under the GMA.

Some have also suggested that Mr. Fishman's work does not meet the test of BAS. Much of this testimony offers little evidence in support of this position beyond personal opinions that differ with those of Mr. Fishman. One common assertion is the lack of a peer review of the City's BAS Report. Per WAC 365-195-905 only three of the eight types of BAS defined by the state are required to include peer review. Mr. Fishman's report includes multiple BAS citations in support of his conclusions and recommendations. There have been very few comments made about the science on

²¹ Ibid.

which the report is based. The most significant of these comments came from the Department of Fish and Wildlife (WDFW) and were responded to by Mr. Fishman in previous documents.²²

Furthermore, the Hearings Board has clearly stated that it is up to the local legislative body to make choices about which science it chooses to accept as a basis for its policy and regulatory approach.²³ By focusing on urbanized systems, the City has attempted to utilize BAS for its urban area.

3.3.2. What “Buffers” Should the City Adopt for Streams?

A large amount of the testimony presented to City Council has discussed the size of stream buffers proposed and the manner in which these buffers are regulated. Comments have included both ends of the spectrum of opinion. At one end are members of the public who support much larger buffers, possibly as large as 600 feet for Type 3 streams. At the other end of the spectrum are those who question the need for buffers at all in the most urbanized areas of the City.

The Working Group attempted to tackle this issue by presenting a compromise of large buffers for undeveloped property and much smaller buffers for developed sites. A second, more complex, scenario was also developed which included a matrix to determine buffer widths. An alternative was also submitted into the record by Council Member Rudolph which built upon the developed and undeveloped concept.

These buffer proposals attempt to address the balance between protecting critical areas and maintaining property values and rights. Unfortunately, the developed vs. undeveloped buffer scenarios are flawed in that they are based on the assumption that simply because a property is developed there is less critical area function to protect. While this may be generally true, one cannot assume that in all cases the developed vs. undeveloped scheme would result in no-net-loss to the critical area functions that presently exist. While the CTED Model Ordinance and many other jurisdictions provide for repair, maintenance and even reconstruction of existing structures that do not comply with CAO requirements, this is different than applying a different buffer based on the fact that the property meets a definition of developed.

For instance, the developed vs. undeveloped schemes do not account for developed properties with existing buffers that meet the undeveloped standards. The simple assumption that a developed site has less critical area function and value may be true in many cases, but cannot be assumed to be true in all cases. Staff attempted to pursue this concept by better defining the terms, but was unable to define “developed” and “undeveloped” in a way that adequately protected existing critical area function and value. A detailed discussion regarding existing uses is located in Section 7.2.4 of this document and recommendations have been developed to address this concern.

This brings us back to the discussion of what are appropriate buffers to protect existing critical area function and value. As described earlier in this chapter, the City

²² *Summary Response to Comment Letters and Staff Recommendation for Revision to the May 26, 2004 Draft Critical Areas Ordinance*, Memo to Planning Commission et al., Planning Department, April 5, 2005.

²³ Hood Canal, 06312c, FDO, pg. 35 & 36.

engaged Mr. Fishman to develop the BAS Report to avoid a one size fits all buffer approach. However, since that decision was made, the City has seen a trend towards the rapid urbanization of the UGA. At this point there is very little UGA left to annex into the City.

In evaluating the recommendations contained in the BAS Report, the most developed of the recommendations are for the South Fork of Dogfish Creek. The City's use of the BAS Report Recommendations for the South Fork of Dogfish Creek has been described in detail in the preceding sections. The report identifies specific reaches, and the measures needed to protect and enhance each stream reach. Table 4 of the Draft CAO includes stream reach notes that correlate to BAS citations in the BAS Report. Unfortunately these notes do not include any regulatory language that applies to this information or that requires the related recommended protection measures indicated in the BAS Report. The RMA recommended in the BAS Report is predicated on the use of these additional protections in lieu of larger buffers. Staff has recommended revisions to Table 4 below to insert the recommended protection measures, and to indicate which is applicable to each stream reach. Staff has also recommended language in the section preceding Table 4 to require implementation of these measures. With these corrections the Draft CAO will fully implement the BAS Report recommendations for South Fork of Dogfish Creek.

The Fishman Report included a review of Johnson and Bjorgen Creeks. The Fishman Report recommended that Johnson Creek be protected by a 75-foot RMA and an additional 25-foot vegetated setback. The Fishman Report recommended that Bjorgen Creek be protected by a 50-foot RMA and an additional 25-foot vegetated setback. The County currently has a 150 foot buffer in place for both streams which is consistent with the standard state guideline for streams of this type. While 150 feet is based on the State guidelines, BAS literature is available to support the Fishman recommended buffers as long as the existing value and function of the critical area is not degraded.

The BAS Report did not include a study of Lemolo Creek; however, a report has been submitted by members of the public which was prepared by Mr. Fishman in September 2006.²⁴ Similarly, a more detailed study of Johnson Creek was also submitted to the record that was prepared by Mr. Fishman in February 2007.²⁵ Each of these studies divides the subject creek into stream reaches and provides reach specific recommendations much as were included in the BAS report for the South Fork of Dogfish Creek. The RMA and protection recommendations are based on much of the same science as the BAS report.

It is the outlying streams where the public has argued for largest buffers. Supporters of very large buffer recommendations for Johnson Creek have submitted a large volume of science that is purported to justify 300-foot buffers. These "large-buffer" supporters have not explained which documents they have submitted in support of this contention. The mere submission of purported scientific documents with no rational explanation as to why or how the science supports this position cannot be a

²⁴ *Proposed Natural Resource Buffers for Lemolo Creek Corridor, Poulsbo WA*, SWCA Environmental Consultants, Inc., September 2006.

²⁵ *Technical Memorandum: Ecological Condition and CAO Recommendation for North Fork of Johnson Creek Corridor, Poulsbo, WA*. SWCA Environmental Consultants, Inc., February 2007.

substitute for science that has been submitted into the record with an explanation of why and how it applies to the particular critical area in question.

The Hearings Board has concluded that “the choice of a city or county, when faced with competing opinions for protecting critical areas – *each based on competent and current science* – is entitled to deference.”²⁶ It is the City that must weigh competing science and determine what is the best available science to use in regulating streams.

A primary assertion appears to be that because these areas are less urbanized and are characterized by much larger existing buffers, they contain higher habitat value and should therefore be protected by greater buffer widths. One item submitted into the record to support this assertion is a map showing relative habitat value across Kitsap County, which appears to have been prepared by the Washington State Department of Fish and Wildlife.²⁷ This map, if accurate, shows that habitat values are generally low throughout the City. The only area showing as high habitat value within the City or UGA is the southerly portion of the North Fork of Dogfish Creek.

Under the GMA, city and county comprehensive plans are required to include area and density sufficient to accommodate the population growth that is projected to occur within the ensuing 20-year planning period. In general, population forecasts for the 20-year planning horizon are issued for each county by the State of Washington Office of Financial Management (OFM), and are then allocated to cities, towns and unincorporated areas by the county after consultation with the affected jurisdictions. Once population is allocated to a city, that city is responsible under the Act to accommodate the population allocation. The City of Poulsbo achieved this through the development and adoption of a Joint Sub Area Plan and Interlocal Agreement with Kitsap County. The City’s sub area plan was not appealed and is therefore compliant with the GMA. Applying unnecessarily large buffers within Poulsbo and its UGA would have a significant impact on the City’s unchallenged land capacity analysis and growth policy.

The assumptions used in developing the UGA include assumptions about the amount of land available for development. In developing the City’s buildable lands analysis staff determined that approximately 22% of land within the City is encumbered by critical areas and associated buffers. This calculation includes not only streams and their buffers, but also wetlands, unstable slope areas and flood ways where development is prohibited, or severely limited. At that time, streams were calculated with a 40 foot buffer on each side of the stream or a total of 80 feet on both sides.

In an attempt to determine the relative impact of significant buffer increases on streams, without doing an entirely new buildable lands analysis, staff has evaluated the impact on a 10 acre square parcel if a stream were to be located approximately in the middle of the parcel. When 40 foot buffers are applied to the site approximately 12% of the site is encumbered by the critical area. This amount of impact to a site is presently built into the City’s assumptions in the capacity analysis. When 75 foot buffers with a 25 foot setback are applied 30% of the site is encumbered. Finally when 150 foot buffers with a 25 foot setback is applied, 53% of the lot is encumbered.

²⁶ Hood Canal, 06312c, FDO, pg. 35 & 36.

²⁷ Bergum, Bob, for the Johnson Creek Association. August 22, 2006. Letter to City of Poulsbo Planning Department (w/attachments).

If you extrapolate these potential impacts based on the length of streams in undeveloped and underdeveloped areas of the City and UGA, consider the allowed density and average household size, an estimate can be made as to the impact on the future population. A 75 foot buffer and 25 foot setback could potentially reduce the estimated population by 550 persons, while a 150 foot buffer with 25 foot setback could potentially reduce the estimated population by 1,250 persons. As the City's 20 year population estimate (including the UGA) is 14,000 this would result in approximately a 4% and 9% decrease in population respectively. These numbers are very generalized and do not consider the methods within the zoning code designed to allow for clustering of residential units; however they help to show the magnitude of the impact of larger buffers on future development within the City. Staff anticipates continuing to review the potential impacts on the City's population capacity and will report further on this item to the City Council.

Large buffers could significantly limit the City's ability to accommodate its 20 year population estimates and could potentially require that a larger UGA be adopted. The current UGA is bounded by streams in many directions, and an expansion could potentially affect habitat over a much larger area. The City's alternative to UGA expansions would be to increase densities in residential zones which could significantly alter the character of the City's residential neighborhoods.

The use of resource management areas is contingent upon implementation of measures that go beyond the concept of a traditional buffer. Meeting the width of an RMA is not all that is implied by the science used to develop such recommended RMA. The width alone is not likely to protect existing function or value. Adoption of a standard buffer may provide a useful regulatory tool where development either has not been developed with the measures needed to assure that the RMA will protect the critical area, or where owners would rather simply provide a vegetative buffer in lieu of integrated site development measures to protect the critical area.

Below, staff has recommended a fundamental change to the way the City proposes to regulate these streams. Staff recommends a two tiered approach whereby the State recommended buffer widths would be required for all streams other than the South Fork of Dogfish Creek, unless development is reviewed and approved to reduce the standard buffer to a reach specific RMA and accompanying protection measures are implemented on the site.

For the South Fork of Dogfish Creek only, the City would adopt the reach specific RMA recommended by the BAS Report, with the changes described above, to assure that the protection measures recommended by the BAS Report are implemented. For this stream there would be no standard buffer option.

For all other stream reaches, staff recommends a standard buffer and the option to reduce the standard buffer to a RMA based on a detailed stream study. Staff proposes to set up a process by which the City would review, circulate for public comment, and accept stream studies for individual streams. Once a report was accepted for a particular stream, a developer would have the option to implement the RMA recommended by the report provided that other protections were implemented. To assure that protections recommended in the stream report will provide no-net-loss to critical area function, a Habitat Management Plan would be required for each site proposing to implement a RMA under this option.

This would require that reports such as the Lemolo and Johnson Creek studies prepared by Fishman for clients other than the City be accepted by City Council prior to any reductions being granted. The City would need to accept these reports as BAS for the particular stream studied. At this time, staff is not ready to accept these documents by incorporating their recommendations in a manner similar to the South Fork of Dogfish Creek. These reports need to be peer-reviewed to assure that they represent BAS for the stream and that recommended protection measures are clearly specified. Staff simply has not had time to fully evaluate these reports at this time.

This option will reduce the impact of large standard stream buffers on the City's buildable lands analysis while protecting streams consistent with the range of BAS. Through the requirement for a detailed stream report and a site specific habitat management plan to mitigate potential impacts, the City will be relying upon stream and site specific information to determine the area needed as a RMA on a particular stream reach. This is intended to allow the City to balance stream protections and GMA goals for urban development without sacrificing stream protections.

3.3.3. Shoreline Buffer Requirements

The 2006 Draft CAO proposed shoreline buffers consistent with those adopted by Kitsap County. Kitsap County's marine buffers were appealed to the Hearings Board, where they were remanded. The Hearings Board determined that the County's marine buffer regulations were keyed to the Shoreline Master Program land use classifications, rather than the functions and values of the County's marine shorelines as fish and wildlife habitat conservation areas. These areas have a range of functions and value depending on, for example, their use by a particular species. The Board found that Kitsap County's approach was not supported by BAS.²⁸ Further, the Tribe commented that the City's proposed marine buffers failed to even comply with the recommendations included in the BAS Report.²⁹ The Tribe went on to express concerns about allowing intrusions into the buffer for water dependent uses, without requiring a habitat management plan.

The City's BAS report recommended a buffer of 100 feet for all of the City's shorelines. *Staff recommends* adopting this buffer width and clarifying that a Habitat Management Plan is required for conditional reductions in Section 16.20.315(B)(3). While this approach will cause many existing structures to become nonconforming, some relief is proposed as a part of the recommendations for existing development in Chapter 7.

3.3.4. Modifications to RMA and Setback Requirements

The draft critical areas ordinance includes a provision to increase stream buffer width requirements³⁰ during project review of development applications. Considerations for requiring an increase in stream buffers include: to protect habitat value or if the site is located within a landslide or erosion hazard area. The draft CAO also allows

²⁸Final Decision and Order, Hood Canal et all v. Kitsap County, August 28, 2006 pg 2.

²⁹ Letter from Alison O'Sullivan, Suquamish Tribe, March 14, 2007.

³⁰ Draft CAO, Section 16.20.315(B)(2), pg. 40.

for up to a 25% decrease in the RMA and RMA setback if the reduction is agreed to by the State Department of Fish and Wildlife.³¹ In no case shall the RMA be reduced to less than 25 feet.

However, the Suquamish Tribe has taken issue with the possibility of allowing buffers on fish bearing streams to be reduced by more than 25% or to less than 50 feet.³² Staff concurs with the Tribe's comments in this regard.

Therefore, staff recommends the Council change the language allowing for buffer reductions below 25 feet to be changed to limit buffer reduction to no less than 50 feet, and only when there is appropriate mitigation and enhancement to ensure that the existing value and functions of the critical area will not be degraded.

3.3.5. Stream Buffer Averaging

Poulsbo's draft critical area ordinance does not currently allow for buffer averaging of standard stream buffer width requirements. However, there has been discussion during the public hearing process on this concept. Staff believes that stream buffers may be averaged to certain degree if the averaging can be demonstrated by a credible analysis coupled with appropriate mitigation and enhancement. This type of allowance would be consistent with the Model Code Recommendations from CTED.³³ However, the City does not have sufficient time to carefully analyze this concept, and staff is reluctant to recommend this type of change without careful consideration of the supporting science and adequate policy discussion by the Council. It does not appear that such averaging would be consistent with BAS where stream buffers have been reduced to RMA based on a detailed study of the stream.

Therefore, staff recommends the Council docket this issue for future consideration. Alternatively, staff could insert the language provided by the State and limit such reductions to standard buffers only.

3.3.6. Expansions of Existing Development along Poulsbo Creek

The designation of Poulsbo Creek as a stream will make most, if not all, of the developed properties in the vicinity of Poulsbo Creek nonconforming. Poulsbo Creek runs right through the middle of one of the City's oldest and desired neighborhoods, Old Town. The creek has been incorporated into the "yardscape" of many properties and no natural buffers exist, nor is there any real likelihood of natural buffers ever being restored without creating millions of dollars of damage to existing property owners. A pure application of the non-conforming doctrine will make it nearly impossible for residents living in the "Old Town" neighborhood to improve their properties. The City concludes this would impose an undue hardship on residents in this neighborhood and has discussed alternatives to a strict application of the non-conformity principle. The primary discussion regarding the regulation of existing

³¹ Ibid, 16.20.315(B)(1), pg. 40

³² Alison O'Sullivan Letter, March 14, 2007

³³ *Model Code Recommendations for Designating and Protecting Critical Areas*, Washington State Office of Community Development 2002, Pg 124.

uses is located in Chapter 7 of this document. The discussion in this section is limited to Poulsbo Creek and methods to reduce the potential impacts of these regulations on this neighborhood.

Many residents that would be impacted have testified that the City should simply not consider Poulsbo Creek as a critical area, and therefore not regulate development adjacent to the stream. However, the letter received from Fish & Wildlife clearly identified Poulsbo Creek as a stream, and therefore it is a critical area requiring protection. The Hearings Board has stated that “[t]he Act requires local governments to designate all lands within their jurisdiction which meets the definition of critical areas. Any exemptions, exclusions, limitations on applicability or other regulatory provisions which result in not designating all critical areas, are prohibited.”³⁴

To ensure compliance with GMA, in the case of Poulsbo Creek the City chooses to balance the goal of protecting environmentally sensitive areas with the goals for accommodating its population allocation, fostering urban growth, limiting sprawl and protecting property rights. This balancing act is appropriate under the law when the legislative body finds that certain GMA requirements are in conflict and this conflict cannot be resolved by a literal application of the law.³⁵ To ensure that the City’s balancing act is appropriate and consistent with the goal of not allowing further degradation of the existing value and function of critical areas, the City has discussed the existing urban development issue at length with the Department of Fish & Wildlife (WDFW) and the Suquamish Tribe.

In addition to the provisions discussed in Chapter 7 applicable to all existing development, staff has negotiated additional standards to allow for the expansion of homes located along Poulsbo Creek.

The proposed provisions would allow for expansions of existing structures along Poulsbo Creek provided that the expansion is located away from the critical area and all impacts are mitigated. This will require a type 2 permit review, to allow for public comment and circulation to both the Tribe and WDFW for their comments.

This approach is appropriate given the built environment in and around Poulsbo’s urban creeks where buffers will not provide the desired functions. Where buffers do not exist at all, BMP must be relied upon. In these areas, consistent with the approach outlined above, protective measures in place of buffers will be relied upon. Requirements for mitigation and enhancement will be determined based on historic site impacts to the critical area, and the scope of proposed alterations. Possible mitigation and enhancement measures may include (but are not limited to): prohibiting or limiting pruning of riparian vegetation; requiring minimum stormwater treatment for new construction, and retrofitting existing impervious areas with minimum stormwater treatment where feasible.³⁶ In certain instances off-site mitigation and/or enhancement may also be required to benefit the watershed.

The City believes this approach will not diminish the values and functions of the ecosystem in which the critical areas exist. This approach is consistent with the Board’s interpretation of the law when it stated “[l]ocal governments have the

³⁴ Pilchuck II, 5347c, FDO, pg. 19

³⁵ DOE/CTED, 05334, FDO, pg. 53

³⁶ NRC, 2002

flexibility to adopt critical area development regulations that would permit the reduction of the geographic extent of, for example, a wetland. This could result in the loss of all or a portion of an individual site-specific critical area, so long as the values and functions of the ecosystem in which the critical area is located is not diminished.”³⁷ In this particular situation, the City’s approach will not diminish the ecosystem of the watershed, and by requiring mitigation/enhancement to occur either on the subject property or somewhere else within the watershed, whichever will provide the greatest benefit, the result may prove more beneficial to the ecosystem than the implementation of a buffer-only strategy.

Finally, the Board has also stated that “[t]he GMA does not mandate that critical area buffers must be “no-build” or “no-touch” areas. The Board reviews the BAS in the City’s record to determine whether the particular buffer adopted – whether “no build” or fully mitigated – will provide adequate protection for functions and values within the scope of the science.”³⁸

Given these recent decisions, the approach proposed for Poulsbo Creek, which is a very small part of the larger Dogfish Creek watershed, will help ensure that no further harm comes to Poulsbo Creek. In fact, opportunity for enhancement and restoration is ensured through the application of the City’s proposed draft CAO. This approach is supported by the Board in Pilchuck II, in which the Board stated “. . .not all critical areas must be protected in the same manner or to the same degree.”³⁹ Therefore, this approach will allow environmental protection and private property rights to coexist in a beneficial way that will bring greater good to the environment and less harm to private property owners than the application of a traditional buffer approach and the pure application of the theory of nonconforming uses. The allowances for existing development along these streams will provide property owners with options to expand their existing structures, provided they improve their portion of the stream corridor, or make off-site improvements to the stream. Over time, these provisions will improve the existing function and value of the critical area.

3.3.7. Areas of Rare Plant Species and High Quality Ecosystems—Inclusion of Development Standards

In reviewing the Draft CAO, staff determined that while areas of rare plant species and high quality ecosystems are classified as critical areas, no development standards were included. Staff has proposed to address this deficiency by dealing with these areas in the same manner as proposed for wildlife habitat conservation areas.

3.4. Decision Point

3.4.1. Recommended Changes to the Draft CAO:

Staff recommends the following amendments to the Draft CAO:

³⁷ Tulalip, 6329, FDO, pg. 11

³⁸ Seattle Audubon, 06324, FDO, pg. 37

³⁹ Pilchuck II, 5347c, FDO, pg. 19

3.4.1.1. Does the City's Stream Characterization Study Constitute BAS?

3.4.1.1.1. No proposed changes.

3.4.1.2. What "Buffers" Should the City Adopt for Streams?

3.4.1.2.1. Delete the following text from Draft CAO Section 16.20.310

~~**Johnson and Bjorgen Creeks Stream/Riparian Corridor Conservation Areas.** Those sections of Johnson and Bjorgen Creeks that are within the City of Poulsbo city limits or urban growth area.~~

3.4.1.2.2. Revise Draft CAO Section 16.20.315(A) as follows:

A. Buffers, Resource Management Areas (RMA) and RMA Setbacks:

1. Buffers or Resource Management Areas, and RMA setbacks and Building setbacks shall be maintained along all identified Habitat Conservation Areas. Distances shall be measured from the ordinary high water mark (OHWM) or from the top of the bank where the OHWM cannot be identified. Two systems of Riparian buffers or RMA dimensions are specified below, Standard Riparian Buffers and Stream Reach Specific RMA based on characteristics and ecological functions of specific stream reaches.
 - a. Standard Riparian Buffers shall be utilized for all streams for which there are no Reach Specific Riparian RMA.
 - b. The use of the Stream Reach Specific RMA is subject to reach specific protection measures. The letters listed after the RMA width correspond to the required protections listed at the end of Table 4.
2. Buffers or RMAs shall be retained in at least the quality of their existing condition; or they may be enhanced by planting indigenous vegetation as approved by the Director. Refuse shall not be placed in the buffer or RMAs.
3. Alteration of buffers or RMA may be allowed for water dependent and water related activities subject to ~~subsection (4)~~ section 16.20.315(B)(3) below, and for development authorized by Section 100 of this Chapter.
4. The buffers or RMA shall include streamside wetlands and/or functional floodplains which provide overflow storage for stormwaters, provide groundwater recharge or discharge functions, or provide seasonal shelter and food for fish. In braided channels, the OHWM or Top of Bank shall be defined so as to include the entire stream feature.
5. Where such features occur on the site, refer to Sections 200 Wetlands and 400 Geologically Hazardous Areas for additional development standards. In cases of differing standards, the more restrictive buffer or setback shall apply.

6. If applicable, the required buffers or RMA buffers may meet specific yard setback requirements of the zoning ordinance.
7. Minor structural or impervious surface intrusions into the areas of the setback may be permitted if the Director determines that such intrusions will not adversely impact the stream or riparian corridor. The Director may require submittal of a special report that provides evidence that a proposed intrusion will not adversely impact the stream or riparian corridor.
8. New development or Redevelopment. Building Standard Buffers and Resource Management Areas and setbacks for Fish and Wildlife Habitat Conservation Areas shall be required as per the following table and text:

3.4.1.2.3. Revise Draft CAO Section 16.20.315(A), Table 4 as follows:
Please note that all changes to Table 4 are included here for clarity.

**Table 4: ~~Fish and Wildlife Habitat Conservation Areas~~
Development Standards**

South Fork of Dogfish Creek Stream/Riparian Corridor Conservation Areas		
Stream Reach	Resource Management Area (feet, each side of stream)	Setback from RMA
Tidewater/Estuary	100 (a)	25
Lower Forested	75, or top of adjacent slope, whichever is greater (b)	25
Urban/Commercial	50 for new development and redevelopment; extent of existing constraints for existing development (c)	25
Canyon	Park boundary or top of slope, whichever is closest to stream, otherwise 100 ft or top of steep slope, whichever is greater (d)	25
Headwater	50 (e)	25
Johnson and Bjorgen Creeks Stream/Riparian Corridor Conservation Areas		
Johnson Creek	75, or top of adjacent slope, whichever is greater (f)	25
Bjorgen Creek	50 (e)	25
Streams (not specifically listed above)		

Stream Water Type	Resource Management Area (feet, each side of stream)	Setback from RMA
2	100	25
3	50	25
4	25	25
5	15	15
Saltwater Shorelines and Lakes		
Shoreline Environment	Resource Management Area (feet above ordinary high water mark)	
Urban and lakes less than 20 acres	20	
Semi-Rural	30	
Conservancy	40	
Wildlife Habitat Conservation Areas		
Class 1	RMA widths and setbacks will be determined through mandatory Habitat Plan.	
Class 2	Site specific conditions will determine the need for preparation of a Habitat Plan for buffer widths and setbacks.	
Notes		
<p>(a) Important and sensitive area for fish passage, chum salmon spawning, salmonid rearing, wildlife habitat. Low development density and large public land holdings.</p> <p>(b) Sensitive area for fish passage, salmonid spawning and rearing, and wildlife habitat. Steep slopes adjacent to stream/riparian area should be protected to avoid increased erosion and sedimentation.</p> <p>(c) RMA size to prevent further degradation. Water quantity and quality BMP actions are important.</p> <p>(d) Water quality and quantity sensitive reach. Protect slopes to avoid erosion and sedimentation, protect sources of organic material and large wood. Protect wildlife habitat.</p> <p>(e) Create and maintain vegetated corridor for groundwater infiltration, water quality (NPS) protection.</p> <p>(f) Protect good quality stream/riparian habitat; water quality, salmonid rearing, wildlife habitat.</p> <p>(g) Building setbacks shall be the maximum as established in this table, further zoning standards regulating setbacks shall not be added; however, if more restrictive buffers or setbacks are required by the zoning ordinance or other provisions of this Chapter, the more restrictive setback shall apply.</p>		

**Table 4: Fish and Wildlife Habitat Conservation Areas
Development Standards**

<u>Standard Buffers and Setback Requirements</u>		
<u>Freshwater Streams</u>		
<u>Stream Water Type</u>	<u>Buffer Width</u> (feet, each side of stream)	<u>Setback from RMA</u>
<u>2</u>	<u>200</u>	<u>25</u>
<u>3</u>	<u>150</u>	<u>25</u>
<u>4</u>	<u>100</u>	<u>25</u>
<u>5</u>	<u>75</u>	<u>25</u>
<u>Saltwater Shorelines and Lakes</u>		
<u>Shoreline Type</u>	<u>Buffer Width (feet above ordinary high water mark)</u>	<u>Setback from RMA</u>
<u>Urban, Semi-Rural, Conservancy, and all lakes</u>	<u>100</u>	<u>25</u>
<u>Stream Reach Specific Resource Management Area and Setback Requirements</u>		
<u>Additional protections are required for development subject to the following RMA Requirements. Letters listed after the RMA width in parentheses indicate which protections are applicable to the particular stream reach. Protections are listed below.</u>		
<u>Stream Reach</u>	<u>Resource Management Area</u> (feet, each side of stream)	<u>Setback from RMA</u>
<u>South Fork Dogfish Creek</u>		
RMA determined by stream reach as follows:		
<u>Tidewater/Estuary</u>	<u>100 (a, b)</u>	<u>25</u>
<u>Lower Forested</u>	<u>75, or top of adjacent slope, whichever is greater (a, b, c, d)</u>	<u>25</u>

<u>Urban/Commercial</u>	<u>50 for new development and redevelopment; extent of existing constraints for existing development (b, e)</u>	<u>25</u>
<u>Canyon</u>	<u>Park boundary or top of slope, whichever is closest to stream, otherwise 100 ft or top of steep slope, whichever is greater (a, b, f, g)</u>	<u>25</u>
<u>Headwater</u>	<u>50 (b, h, i)</u>	<u>25</u>

**Additional Protections Required
for Properties within 300 feet of the South Fork of Dogfish Creek:**

- (a) Maintain a 50 foot no-cut area on both sides of stream, measured from outer edge of riparian area. Edge of riparian area shall be determined in the field by a qualified Biologist where there is existing forest.
- (b) Maximum stormwater treatment required for new construction; retrofit existing impervious areas with minimum storm water treatment when expansions or alterations trigger a major site plan amendment.
- (c) Maintain vegetation on hill slopes adjacent to stream.
- (d) Retain curb along SR 305 to direct stormwater runoff, and provide stormwater treatment facilities prior to runoff entering creek.
- (e) Pruning of riparian vegetation is prohibited. Removal of invasive species and replanting of existing buffer areas with native riparian vegetation may be required at the time of major site plan amendments or redevelopment.
- (f) No tree cutting (except for removal of danger trees in accordance with PMC 16.20.120(H)) on canyon side slopes and bottom in Wilderness Park.
- (g) No tree cutting (except for removal of danger trees in accordance with PMC 16.20.120(H)) or land clearing along both sides of stream between Wilderness Park and SR 305.
- (h) Retain forested wetland at downstream side of Lincoln Road.
- (i) Require on-site infiltration of stormwater, where soils are appropriate, for new construction; establish downspout disconnection program for existing development.

Wildlife Habitat Conservation Areas

<u>Class 1</u>	<u>RMA widths and setbacks will be determined through mandatory Habitat Plan.</u>
<u>Class 2</u>	<u>Site specific conditions will determine the need for preparation of a Habitat Plan for RMA widths and setbacks.</u>

Areas of Rare Plant Species and High Quality Ecosystems

RMA widths and setbacks will be determined through mandatory Habitat Plan.

3.4.1.2.4. Revise Draft CAO Section 16.20.315(B) as follows:

B. Changes to Standard Stream/Riparian RMA Buffers:

1. Provisions for decreasing the RMA and RMA setback Standard Buffers:

a. The Director may decrease the RMA and/or RMA standard buffer or setback after consultation if review with the Washington State Department of Fish and Wildlife and the Suquamish Tribe, concurs and determines that conditions are sufficient to protect the affected habitat. A Habitat Management Plan may shall be required. The Director may reduce the RMA width by up to 25%, but the RMA width shall not be less than 25 feet 50 feet.

b. RMA reductions may be made following adoption of a detailed stream report that documents the existing functions and values of the stream including stream reaches downstream from the subject property. Detailed stream reports shall be reviewed as a Type IV permit and shall require a public hearing before council. Such reports shall incorporate Best Available Science for the particular stream. Accepted reports shall be adopted by resolution. Projects proposing to utilize a RMA authorized under this provision shall comply with all of the following standards:

1. The reduction from the standard buffer to the recommended RMA contained in an adopted detailed stream report shall be supported by a Habitat Management Plan and shall be consistent with the recommended protections in the adopted report; and

2. Reductions under this provision shall not reduce RMA below 50 feet or below the recommended RMA in the detailed stream study accepted by the City.

2. **Provisions for increasing the Standard Buffers or RMA:** The Director may increase the buffer or RMA width whenever a specific development proposal has known locations of endangered or threatened species for which a Habitat Management Plan indicates a larger RMA is necessary to protect habitat values for such species, or is located within a landslide or erosion hazard area.

3. **Conditional RMA Alterations:** The Director may alter the standard buffer, RMA and setback for water dependent structures and utilities may alter the required RMA when no other reasonable or practical alternative exists and the development is consistent with the City Shoreline Master Program. Any alteration of an buffer or RMA may shall be the least necessary and shall require a Habitat Management Plan which identifies and adequately protects any affected fish and wildlife conservation area habitat values.

3.4.1.3. Shoreline Buffer Requirements

3.4.1.3.1. Changes are included in Table 4 above.

3.4.1.4. Modifications to RMA and Setback Requirements

3.4.1.4.1. Changes are included in the revisions noted in Section 3.4.1.2.4 above

3.4.1.5. Stream Buffer Averaging

3.4.1.5.1. No proposed changes.

3.4.1.6. Expansions of Existing Development along Poulsbo Creek

3.4.1.6.1. Revise Draft CAO Section 16.20.315 as follows:

F. Provisions for Expansions of Existing Development along Poulsbo Creek:

Existing development adjacent to Poulsbo Creek which was lawfully constructed, approved or established prior to the effective date of this Chapter, but which does not conform to present regulations or standards may be expanded as follows:

1. A nonconforming single-family residence or mobile home may be enlarged up to 50 percent of its existing size as long as:
 - a. The new construction extends away from the critical area and related buffer or RMA and setback, is located over an existing impervious area or is a second/third story addition located over the existing structure and;
 - b. The reconstruction and/or enlargement shall be appropriately mitigated to ensure the existing value and function of the critical area is not degraded;
 - c. mitigation and enhancement is required as per subsection 2 below;
 - d. the structure(s) are located outside of a flood hazard area and active landslide hazard area; and
 - e. the reconstruction and/or enlargement meets all other dimensional standards and requirements contained in the PMC.
2. Requirements for mitigation and enhancement will be determined based on historic site impacts to the critical area, and the scope of proposed alterations. Possible mitigation and enhancement may include, but shall not be limited to: prohibiting or limiting pruning of riparian vegetation; requiring minimum stormwater treatment for new construction, and retrofitting existing impervious areas with minimum stormwater treatment where feasible. In certain instances off-site mitigation and/or enhancement may also be required to benefit the watershed.

3. Proposals that proposed to utilize these requirements shall require a Critical Area Permit, a Type 2 review.

3.4.1.7. Areas of Rare Plant Species and High Quality Ecosystems—Inclusion of Development Standards

- 3.4.1.7.1. Changes are included in Table 4 above.

3.4.2. Alternatives:

Staff has not developed detailed alternatives. The City could choose to maintain the use of the BAS report for the streams studied. The City could choose to implement the State recommended buffers throughout the City.

3.5. Conclusion

The Poulsbo BAS report identified a combination of measures that would protect fish and wildlife habitat along Poulsbo's stream corridors and shoreline, while recognizing the existing conditions and future needs of the urban area. These measures include identification of Resource Management Areas and associated setbacks within which development activities would be prohibited or limited and the prescription of Best Management Practices and actions that would improve existing conditions and ecological functions.

The recommendations of the Poulsbo BAS Report are supported by Best Available Science that recognizes the nature of urban watersheds and stream systems.

The Poulsbo BAS report identified ecological functions that need to be protected, on a stream reach basis, to maintain and protect habitat for native fish and wildlife. The recommendations also recognize that urban areas support a diversity of wildlife, and can support many native species if larger habitat patches exist, and connections between them are maintained.

Poulsbo's regulations to protect stream functions are consistent with the range of recommendations included in current best available science. However, the proposed revisions to Section 300 take a more conservative approach by requiring standard buffers as recommended by the State for all streams other than South Fork of Dogfish Creek. This conservative approach reflects the difference between a buffer and a RMA. The City still supports the RMA concept and proposes a method by which detailed stream reports may be accepted as BAS for a particular stream and then development may utilize the RMA recommendation in the stream report provided that the development implements upland protection measures to assure no loss of critical area function. This change reflects the fact that an RMA is not simply a smaller buffer, but one piece of an integrated protection system.

Because the Fishman Report cites legitimate scientific sources relevant to the Urban Environment and applicable to the City in support of the recommended RMA and associated setbacks for South Fork of Dogfish Creek, and standard buffer widths were taken from State recommendations, staff concludes that proposed stream RMA and

associated setback contained in Table 4: Fish and Wildlife Habitat Conservation Areas Development Standards are within the range of recommendations of best available science to protect stream functions and values in the City.

3.1.1. Recommended Findings:

- 3.1.1.1. Poulsbo’s Fish and Wildlife Habitat Conservation Areas mapping, classification, designation and draft regulations, with the proposed revisions, have been developed with the consideration and inclusion of best available science, and the method by which the City proposes to address Fish and Wildlife Habitat Conservation Areas protection is compliant with the GMA.

3.1.2. Recommended Motion to adopt proposed changes:

I move to (*accept*) (accept with modifications) (deny) the staff recommended changes in Section 3.4.1 and findings in Section 3.5.1 for Section 300 of the Critical Areas Ordinance.

4. GEOLOGICALLY HAZARDOUS AREAS

4.1. Introduction

4.1.1. Topography

Poulsbo's landscape is typical of North Kitsap County, with numerous hills and valleys, streams, and frontage on the waters of Puget Sound. Elevations range from sea level to 440 feet, with moderate to steep slopes. Two ridges run along each side of Liberty Bay and gradually rise in elevation to the north, accentuating the general topographic trend within Poulsbo. The west leg of the ridge slopes gradually toward Liberty Bay, while the eastern leg slopes in a broken pattern of knolls, valley and benches to the eastern shore.

4.1.2. Soils

The soils of Kitsap County formed mainly in glacial drift deposited by the most recent of several continent-sized glacial ice sheets. This 3,000-foot glacier, emanating from Canada, formed most of the topography and waterways of the area between 13,000 and 15,000 years ago.

The predominant deposit, and therefore parent soil material, is glacial till. It generally consists of compact basal till covered by a thin discontinuous layer of ablation till. The Kapowsin, Poulsbo and Sinclair soils, prominent soils in Poulsbo, were formed in this till material.

Underlying these glacial deposits is sediment deposited during previous glacial or interglacial periods. This sediment, generally exposed only on sea cliffs, consists primarily of stratified clay, silt, sand and gravel. Where this deposit has glaciolacustrine properties, Kitsap soils formed. Kitsap soils are the prominent soils on the eastern shoreline of Liberty Bay, and north of Hostmark to Bond Road.

4.1.3. Geologically Hazardous Areas

Geologically hazardous areas are places highly susceptible to erosion, landslides, earthquakes, or other geologic events. In Poulsbo, the most hazardous of these areas is typically found along the marine shorelines and stream ravines. The intent of identifying, classifying and designating geologically hazardous areas is to evaluate whether development should be prohibited, restricted or otherwise controlled because of danger from geological hazards. In some cases, the risk from geological hazards can be reduced or mitigated to acceptable levels by engineering design or modified construction practices.

Poulsbo's definition of Geologic Hazard Areas consolidates the State's definition of Geologic Hazard Areas (WAC 365-190-030(8)), and guidance provided under WAC 365-190-080(4) for their regulation. The draft definition states that geologic hazardous areas are those "[a]reas, as defined in WAC 365-190-030(8), 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. Development in geologic hazard areas may be permitted when an approved geotechnical or geological report indicates that the development can be engineered to pose no significant threat to public health or safety.”¹

The State designates four categories of Geologically Hazardous Areas: Erosion Hazard, Landslide Hazard, Seismic Hazard, and areas subject to other geologic events such as coal mine hazards and volcanic hazards.

4.2. Assessment of Policies and Regulations

4.2.1. Comprehensive Plan Policies

Geology Element Policy 1: The City shall map all significant geological hazards. These hazardous areas are to include: areas of 30% slope or greater, landslide areas, erosion areas, and liquefaction zones. Any development proposals within these areas will require a more detailed identification, mapping and assessment of these geological hazards.

Geology Element Policy 2: All development proposals within geologic hazardous areas, must prepare a detailed soils and geotechnical study which includes a detailed slope analysis.

Geology Element Policy 3: The City of Poulsbo shall develop and enact ordinances for the evaluation and abatement of structural hazards or deficiencies in existing and new structures which could result in structural failure and the endangerment of public safety in the event of an earthquake.

Geology Element Policy 4: To protect the City’s scenic and aesthetic character, as well as its natural resources, it will develop and implement standards of development and ordinances promoting, protecting and enhancing slopes, hillsides, ridgelines and shorelines in the Urban Growth Area.

The City of Poulsbo’s Comprehensive Plan defines steep slope hazards as:

Intermediate Slopes: >15% slopes are generally steeper than fifteen percent but do not exceed thirty percent. This includes slopes without known failures of sand and gravel, till or thin soils over bedrock.

Intermediate Steep Slopes: > 30% slopes steeper than thirty percent. This includes slopes without known failures of sand and gravel, till or thin soils over bedrock. Due to steepness of slope, rock fall or other talus material is found at the base, mainly as the result of gravity.

Very Steep Slopes > 40% slopes – These slopes are 40% or greater in steepness. These areas are prone to rockfall and landslides and are extremely hazardous.”²

The comprehensive plan policies are implemented in the development regulations; however the slope definitions are no longer used in determining

¹ City of Poulsbo Draft CAO, Section 16.20.155, pg. 14.

² City of Poulsbo Comprehensive Plan, 1994, pg. VI-9.

which slopes are geologically hazardous. The definitions have been docketed for review as a part of the 2007 Comprehensive Plan update.

4.2.2. Mapping

Geologically Hazardous Areas and Areas of Geologic Concern have been identified and mapped. The Quaternary Geology and Stratigraphy of Kitsap County³, Coastal Zone Atlas⁴, and Soil Survey of Kitsap County Area, Washington⁵ are the primary sources of soil analysis and identification. The Geologically Hazardous Area map was based upon the data in the three documents.

The City also utilizes topographic mapping and LIDAR to identify the presence of steep slope areas. Site surveys and a slope analysis are required to be submitted with applications for projects in areas mapped as geologically hazardous to more accurately determine the extent and location of regulated steep slope areas on a site.

The Draft Map identifies potential geologically hazardous areas. The critical area regulations state that City mapping is intended as a guide to the general location and extent of critical areas. The criteria in the code that defines critical areas supersedes mapping. Because of the general scale of City mapping, site-specific topographic, survey and geologic information is required with development proposals to determine if critical areas are present on a site.

4.2.3. Classification and Rating

Poulsbo's draft critical area regulation classifies potential geologically hazardous areas as either geologically hazardous or areas of geologic concern. Generally the areas in the first category include areas of historic failures and are considered to be extremely hazardous. The second category includes areas which are potentially hazardous and warrant site specific review to determine the potential hazard.

Poulsbo's draft critical area regulation classifies geologically hazardous areas as:

- A. Areas with slopes greater than 30 percent and mapped by the Coastal Zone Atlas or Quaternary Geology and Stratigraphy of Kitsap County as Unstable (U), Unstable Old Land Slides (USO) or Unstable Recent Slides (URS); and
- B. Areas with slopes greater than 30 percent in grade and deemed by a qualified geologist or geotechnical engineer to meet the criteria of U, UOS, or URS.”⁶

Poulsbo's draft critical area regulation classifies areas of geologic concern as

- C. Areas designated U, UOS, or URS in the Coastal Zone Atlas or Quaternary Geology and Stratigraphy of Kitsap County, with slopes less than 30 percent; or

³ *The Quaternary Geology and Stratigraphy of Kitsap County, A Thesis Presented to the Faculty of Western Washington University.* Jerald D. Deeter. May 1979

⁴ *Coastal Zone Atlas of Washington, Volume 10 Kitsap County.* .Washington State Department of Ecology. June 1979.

⁵ *Soil Survey of Kitsap County Area, Washington.* US Department of Agriculture, Soil Conservation Service. 1977.

⁶ City of Poulsbo Draft Critical Areas Ordinance, Section 16.20.410, pg. 46.

- areas found by a qualified geologist to meet the criteria for U, URS, and UOS with slopes less than 30 percent; or
- D. Slopes identified as Intermediate (I) in the Coastal Zone Atlas or Quaternary Geology and Stratigraphy of Kitsap County, or areas found by a qualified geologist to meet the criteria of I; or
 - E. Slopes 15 percent or greater, not classified as I, U, UOS, or URS, with soils classified by the Natural Resources Conservation Service as “highly erodible” or “potentially highly erodible”; or
 - F. Slopes of 15 percent or greater with springs or groundwater seepage not identified above; or
 - G. Seismic Areas subject to liquefaction from earthquakes (Seismic Hazard Areas) such as hydric soils as identified by the Natural Resource Conservation Service, and areas that have been filled to make a site more suitable. Seismic areas may include former wetlands which have been covered with fill; or
 - H. Areas mapped as “severe” in all development limitations based on mapped soil units of the USDA Soil Conservation Service. These designations are listed in Table 10 of Soil Survey of Kitsap County Area, Washington.⁷

4.2.4. Development Regulations

Geological and soils information indicate that failure of the ground is possible in the geologically hazardous areas, depending upon the development activity undertaken. Grading operations, land clearing, or the load characteristics of buildings on hillsides may increase these failures. Damages resulting from these failures may include the loss of life and property, disruptions of utility systems, or blocking of roads. For these reasons, development in these areas should be regulated. Each development in these areas is different, and therefore each development in these areas should have a special report completed.

In general, Poulsbo requires site-specific studies with development proposals in areas mapped as geologically hazardous, in order to: 1) identify the presence of geologic hazard areas and whether the areas meet regulatory thresholds according to the code definition or criteria; and, 2) prepare geotechnical reports to assess site conditions, evaluate risk and identify necessary mitigation.

The City has found that site-specific information is often necessary due to the variety and complexity of geologic conditions. The site-specific information required to review development proposals qualifies as the best available science, both for the purpose of providing relevant and accurate information about site conditions, and for identifying the mitigation measures to reduce the risk and impacts of a specific proposal.

The draft critical area ordinance requires a minimum 25-foot buffer from the top, toe, and all sides of slopes defined to be Geological Hazardous Areas and/or Areas of Geologic Concern. The 25-foot steep slope buffer may be reduced if a geotechnical

⁷ Ibid, Section 16.20.410, pg. 46-47.

study determines it would not reduce the level of protection. Alternatively, if the findings of the report support the need, the slope buffer may be required to be enlarged. In cases where the special report indicates a significant risk to public health, safety or welfare, the City shall deny or require revision of the application.⁸

The code also allows the City to require a third-party independent review of geotechnical analyses. This provides an additional, objective measure of protection.

The draft critical area regulations further provide the City Engineer with the authority to require an erosion and sedimentation control plan for all development proposals in Geologically Hazardous Areas.⁹ This plan may be conditioned to include seasonal limitations for any clearing and grading in Geologically Hazardous Areas, temporary control measures and a vegetation management plan may also be required when determined to be necessary. These provisions supplement the City wide erosion control policies implemented in Title 15.

4.3. Discussion of Outstanding Issues

At present there are no substantial outstanding issues.

Staff recommends clarifying the threshold requirements for slope and soils reporting. The current draft simply states that a geotechnical or geologic report may be required to confirm or modify existing information known about the site (PC Draft CAO 16.20.410(B)). Addition of specific threshold requirements for reporting will provide clear direction for staff and applicants.

4.4. Decision Point

4.4.1. Staff Recommendation:

Staff recommends the following amendments to Section 16.20.410 (B) Site Specific Determination, of the Draft CAO:

Geological and Geotechnical Report Provisions: A Geotechnical or Geologic report ~~may shall~~ be required ~~or requested from the applicant, to confirm or modify existing information known about a specific site.~~ for development proposals located within geologically hazardous areas and areas of geologic concern. The requirements for special reports are contained in Section 700 of this Chapter.

4.4.2. Alternatives:

The change is a housekeeping measure. Staff cannot support retaining the existing language, as it is vague and potentially could allow a property in a geologically hazardous area to be developed without a site specific determination.

⁸ Ibid, Section 16.20.415(A), pg. 47.

⁹ Ibid, Section 16.20.415(B), pg. 47.

4.5. Conclusion

Scientific information has been included in the development of policies and standards for geologically hazardous areas. Regulations and standards are consistent with best available science recommendations to protect public safety from significant risks of geologic hazards and to require mitigation of potential impacts.

The protection of steep slope areas also indirectly protects critical area functions by preserving vegetated areas for wildlife habitat, linking upland habitats to valley riparian areas, and allowing for groundwater infiltration providing a water source to wetlands and streams.

Poulsbo requires site-specific studies to evaluate the risk and potential impacts of development proposals in geologic hazard areas. Site-specific geotechnical reports are required to assess site conditions, evaluate risks and identify necessary mitigation and structural design recommendations. Independent, third-party review of an applicant's geotechnical report is often required. The site-specific information required to review development proposals qualifies as the best available science, both for providing relevant and accurate information about site conditions and identifying the mitigation measures to reduce the risk and impacts of a specific proposal.

4.5.1. Recommended Findings:

- 4.5.1.1. Poulsbo's Geologic Hazard area mapping, classification and regulations have been developed with the consideration and inclusion of best available science and the method by which the City proposes to address geologic hazard areas is compliant with the GMA.

4.5.2. Recommended Motion to adopt proposed changes:

I move to (*accept*) (accept with modifications) (deny) the staff recommended changes in Section 4.4.1 and findings in Section 4.5.1 for Section 400 of the Critical Areas Ordinance.

5. CRITICAL AQUIFER RECHARGE AREAS

5.1. Introduction

The Washington State Growth Management Act (GMA) defines Critical Aquifer Recharge Areas in RCW 36.70A.030(5) as: “areas with a critical recharging effect on aquifers used for potable water.”

The Kitsap County Ground Water Management Plan (1991) identifies the Poulsbo Aquifer as a concern because it has high permeability and potential for contamination. The Poulsbo Aquifer is one of the City’s two water sources; the other is the Dogfish Creek Drainage Basin.¹

The Draft CAO states that areas “that may have been identified as a Critical Aquifer Recharge Area may be subject to a Hydrogeological Report (see Section 700). Those areas have a potential for contamination by land uses identified in Table 5 “Operations with Potential Threat to Ground Water.” These areas include the Poulsbo Aquifer area and lands within one (1) year wellhead travel distance for ground water. Land uses listed in Table 5 may be limited or prohibited on specific sites within these critical areas. Prior to approval of any of the uses listed in Table 5, a Hydrogeological Report shall be required”²

This section of the Draft CAO fulfills regulatory requirements for wellhead protection planning and groundwater quality protection.

5.2. Assessment of Policies and Regulations

5.2.1. Comprehensive Plan Policies

Currently the only comprehensive plan policy that directly relates to aquifer recharge is Natural Systems Policy #18 identified on page 5 of the introduction which requires the use of BAS when designating and protecting such areas. The comprehensive plan does include policies related to stormwater control which affect aquifer recharge.

5.2.2. Mapping

Aquifer recharge areas have been mapped to assist in identifying areas where special conditions may be necessary to ensure Poulsbo’s ground water resource is protected from contamination.

¹ City of Poulsbo Comprehensive Plan, 1994, pg. VI-15.

² Section 500: Draft CAO, pg. 50.

5.2.3. Classification and Rating

Critical Aquifer Recharge areas are geographic areas which provide the recharge to an aquifer(s) which is a current or potential source of potable water and, due to its geologic properties, is susceptible to the introduction of pollutants, or because of special circumstances, has been designated a Critical Aquifer Recharge Area in accordance with WAC 365-190-080.

The City separates aquifer recharge areas into two categories: Critical Aquifer Recharge Areas and Aquifer Recharge Areas of Concern. The following criteria are used to designate Critical Aquifer Recharge Areas:

Wellhead Protection Zones around Group A water system supply well:

1. Areas inside the one-year time of travel zone for Group A water system wells, calculated in accordance with the Washington State Wellhead Protection Program.
2. Five year time of travel zones in Wellhead Protection Areas are included as Critical Aquifer Recharge Areas under the following condition: The five year time of travel zone is included when the well draws its water from an aquifer that is at or below sea level and is overlain by permeable soils listed below, without an underlying protective impermeable layer.³

The following criteria are used to designate Aquifer Recharge Areas of Concern:

Aquifer Recharge Areas of Concern are those areas which provide recharge to current or potential potable water supplies and are vulnerable to contamination, and meet any one of the following criteria:

1. Highly Permeable Soils: Soils that have relatively high permeability and high infiltration potential may provide for groundwater recharge, but also may enhance transfer of contaminants from the surface to ground water. For these reasons, the locations where surface soils are highly permeable are considered Aquifer Recharge Areas of Concern.

The general location and characteristics of soils is identified in the Soil Survey of Kitsap County. The following soil types are considered to have relatively high permeability and are Aquifer Recharge Areas of Concern:

<u>Soil Type</u>	<u>Soil Map Units</u>
Grove	11, 12, 13
Indianola	18, 19, 20, 21
Neilton	34, 35, 36
Norma	37, 38
Poulsbo/Ragner	41, 42, 43, 44, 45, 46, 47

2. Areas above Shallow Principal Aquifers: Surface areas above shallow, principal aquifers which are not separated from the underlying aquifers by an impermeable layer that provides adequate protection to preclude the proposed land use from

³ Draft CAO, pg. 49.

contaminating the shallow aquifer(s) below, are considered Aquifer Recharge Areas of Concern.

3. Areas with high concentration of Group B Water System Well and private domestic wells:

Locations with well concentrations of 36 map units or more within a one-mile radius of the proposed land use are considered Aquifer Recharge Areas of Concern.

5.2.4. Development Regulations

The City's Draft Critical Areas Ordinance provides for a hydrogeologic report to be prepared, if warranted, to ensure the aquifer recharge areas are protected from contamination.⁴ A hydrogeologic report is required to be prepared prior to the City approving any of the uses listed in Table 5: Operations with Potential Threat to Groundwater.⁵ The City also has regulations that are intended to supplement the critical area regulations to ensure sufficient recharge of the aquifer, which include:

- The City has adopted amendments to the Kitsap County Stormwater Manual which include low impact development standards that provide for infiltration of stormwater.
- Small-scale, low impact development Best Management Practices (BMP) would be required for smaller development that is exempted from requirements for constructed stormwater facilities.
- Infiltration of stormwater would not be required if it is not feasible due to site-specific soil or geologic conditions, if it is determined that increased saturation of soils would have the potential to impact adjacent properties or existing facilities, or if stormwater infiltration would present a considerable risk of contamination to the aquifer.

5.3. Discussion of Outstanding Issues

At present there are no substantial outstanding issues.

After reviewing the current draft staff is recommending revisions to the development standards. These changes are intended to assure that development in these areas will protect aquifers, and will provide notice to Kitsap County Health Department and any affected water purveyors when uses are proposed which have the potential for affecting aquifers. The bulk of the proposed text was taken from the Kitsap County critical area provisions for aquifer recharge areas.

⁴ Draft Critical Areas Ordinance, Section 16.20.515, Development Standards, pg. 50.

⁵ Ibid.

5.4. Decision Point

5.4.1. Staff Recommendation:

Staff recommends the following amendments to the Draft CAO Section 16.20.515 development standards:

~~Areas that have been identified as a Critical Aquifer Recharge Area may be subject to a Hydrogeological Report (see Section 700). Those areas have a potential for contamination by land uses identified in Table 5 “Operations with Potential Threat to Ground Water.” These areas include the Poulsbo Aquifer area and lands within one (1) year wellhead travel distance for ground water.~~

~~Land uses listed in Table 5 may be limited or prohibited on specific sites within these critical areas. Prior to approval of any of the listed uses, a Hydrogeological Report shall be required.~~

A. Critical Aquifer Recharge Areas.

1. Land uses identified in Table 5 shall require a hydrogeological report (See Section 700, Special Reports) that includes a detailed risk-benefit analysis that considers credible, worst-case scenarios. The hydrogeological report shall evaluate potential impacts of a proposed land use or activity on both groundwater and surface water quality. Uses listed in Table 5 may only be permitted where 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 ground water.

B. Aquifer Recharge Areas of Concern.

1. Applicants proposing operations that pose a potential threat to groundwater as listed in Table 5 in aquifer recharge areas of concern may be required to submit a hydrogeological report (See Section 700, Special Reports). The scope of the report shall be based on site-specific conditions.
2. The need for additional information will be determined by the Department, the Health District and the affected water purveyor. Based on the results of the report, controls, mitigation, and/or other requirements will be established as a prerequisite for the development proposal being approved.

C. Notification and Review.

1. Affected water purveyors, tribes and the Kitsap County Health District will be notified and invited to comment during the preliminary phases of the city's review process on the proposed land use and potential impacts. The purveyor may recommend appropriate mitigation to reduce potential impacts. The Department will consider these recommendations to develop appropriate permit conditions.
2. The Department will also notify the Health District and affected water purveyors through the environmental review process, when those development activities listed in Table 5 are proposed outside the areas designated critical aquifer recharge areas.

D. Stormwater.

1. Stormwater infiltration shall be required where soils permit.
2. Low impact development Best Management Practices (BMP) are required for smaller developments exempted from requirements to construct stormwater facilities.

E. Uses Requiring County, State or Federal Approval.

Applicants shall provide the Department with documentation of compliance with County, State and/or Federal regulations associated with uses listed in Table 5.

5.4.2. Alternatives:

The change is a housekeeping measure to better implement the regulations. Alternatives have not been developed.

5.5. Conclusion

Poulsbo's proposed standards provide for protection of the aquifer, particularly in terms of minimizing the potential for contamination.

The development standards include a provision to prohibit land uses and activities that pose significant risk to groundwater quality. By the City requiring a hydrogeologic study where there is a concern about a proposal's potential impact to the aquifer or where a use contained in Table 5 is proposed within an area mapped as a Critical Aquifer Recharge Area, the City has taken appropriate measures to protect this important source of potable water. Any land use proposed from Table 5 would trigger SEPA review and the City's distribution of SEPA threshold determinations ensures Federal, State, County and tribal agencies are notified of proposed activities that may harm potable water sources. Agency comments are always considered by the City prior to making a recommendation on a land use proposal or decision.

5.5.1. Recommended Findings:

- 5.5.1.1. The City's Draft Critical Areas Ordinance aquifer protection standards further strengthen protection of aquifer water quality and quantity.
- 5.5.1.2. Public testimony before the City Council did not address Critical Aquifer Recharge Areas or Wellhead Protection Zones in a substantive way. Poulsbo's development regulations prohibit residential and commercial development and all other encroachment in the FEMA floodway.
- 5.5.1.3. Poulsbo's Critical Aquifer Recharge Area and Wellhead Protection Zone mapping, classification, designation and draft regulations, with the proposed revisions, have been developed with the consideration and inclusion of best available science, and the method by which the

City proposes to address Critical Aquifer Recharge Areas and Wellhead Protection Zones is compliant with the GMA.

5.5.2. Suggested Motion to Adopt Proposed Changes:

I move to (*accept*) (accept with modifications) (deny) the staff recommended changes in Section 5.4.1 and findings in Section 5.5.1 for Section 500 of the Critical Areas Ordinance.

6. FREQUENTLY FLOODED AREAS

6.1. Introduction

Flood hazard areas are defined as those areas adjoining creeks and streams that are inundated by the 100-year flood. The Federal Emergency Management Agency's (FEMA) definition for the term "100-year flood" is the flood elevation that has a 1% chance of being equaled or exceeded each year. The 100-year flood, which is the standard used by most Federal and State agencies, is used by the National Flood Insurance Program (NFIP) as the standard for floodplain management and to determine the need for flood insurance.

Alterations to natural floodplains generally result in increasing the flooding risk to people and property, and impact fish and wildlife habitat. Traditional flood control practices have been particularly damaging to fish and wildlife habitat, but contemporary methods are striving to provide an acceptable level of flood protection to people and property, while at the same time preserving and enhancing fish and wildlife habitat. Reducing risk to people and property is best achieved by limiting floodplain development and ensuring that allowed development does not increase flood elevations and flow velocities, change flood flow patterns, reduce flood storage, increase erosion or increase the area of flood inundation.

Only one stream in the City of Poulsbo has a designated floodway: Dogfish Creek.

Several other areas in the City of Poulsbo have flood hazard designations; they include: Liberty Bay, Dogfish Creek, and Bjorgen Creek in the vicinity of Hwy 305.

The City recently adopted an updated Floodplain Management Chapter (PMC 15.24) through the adoption of a new Flood Prevention Ordinance (Ordinance 2005-27), which is adopted by reference to be part of the City's CAO. This ordinance was reviewed and approved by the Washington State Department of Ecology.

6.2. *Assessment of Policies and Regulations*

6.2.1. *Comprehensive Plan Policies*

Hydrology Policy 4: To assure that all the area's water resources are protected and water related hazards (i.e. flooding and erosion) are minimized, the City has developed a Draft Comprehensive Surface Water Management Plan and a Storm Water Control Ordinance. All land use proposals shall conform to the development standards contained within these documents.

Hydrology Policy 8: Those areas with limitations due to surface flooding, geologic instability or soil settling problems should be restricted from intense development.

Hydrology Policy 10: Impervious cover should be held to a minimum to reduce flooding, erosion and excessive storm runoff.

Hydrology Policy 13: All development proposals within areas of potential flooding or inundation must provide at least one all-weather access road in the event of a 100 year storm.¹

Hydrology Policy 4 is implemented through Stormwater regulations and supplemented through the floodplain management chapter. Hydrology Policy 8 is implemented through the prohibition of development within the floodway. Hydrology Policy 10 implemented primarily through limitations on lot coverage contained in the zoning code. Hydrology Policy 13 is implemented through the floodplain management regulations which require such access.

6.2.2. Mapping

Flood Hazard areas are delineated by existing FEMA mapping. The mapping includes those areas inundated by 100-year and 500-year floods. To improve the accuracy of the FEMA mapping, which was originally developed in the 1970s, DOE consulted with City staff to revise the FEMA maps and develop a new Flood Hazard Ordinance that complies with DOE's most recent floodway and floodplain regulations. FEMA has not yet adopted the revised maps, however Ordinance 2005-27 includes an automatic adoption clause so that when the maps are adopted by FEMA, they will be automatically adopted by the City. When assessing the potential for a flood hazard on a given site, staff utilizes the FEMA maps. Flood hazards are not reproduced on the City's Critical Area Maps.

6.2.3. Classification and Rating:

Poulsbo classifies flood hazard areas consistent with the following FEMA definitions:

Floodways: For most waterways, the floodway is where the water is likely to be deepest and fastest. It is the area of the floodplain that should be reserved (kept free of obstructions) to allow floodwaters to move downstream. (FEMA).

100-year floodplain: defined as areas that are subject to a one percent (1%) or greater chance of flooding in any given year (FEMA), and

500-year floodplain: defined as areas that are subject to less than (1%) chance of flooding in any given year (FEMA).

6.2.4. Development Regulations:

The City of Poulsbo regulates Flood Hazard areas to protect members of the public from injury, loss of life, property damage or financial loss due to flooding. Protection measures are specified in PMC 15.24.160 through 15.24.260 (as amended by Ordinance 2005-27).

Additionally, flood hazards are mitigated citywide through the application of the City's Stormwater Comprehensive Plan. The City has recently revised its Stormwater

¹ City of Poulsbo Comprehensive Plan Page VI-26 – VI-27

Comprehensive Plan and is in the process of reviewing this document prior to submitting the document to the public hearing process.

Poulsbo's development regulations prohibit residential and commercial development and all other encroachment in the FEMA floodway, except when certified by a registered professional engineer. Development in the 100-year floodplain is allowed provided the elevation of structures is at least one foot (1') above the established base flood elevation.

A Flood Protection Permit is required for all development activity within the 100-year floodplain to document compliance with City regulations. Before a certificate of occupancy is issued, new building construction must provide an Elevation Certificate to verify that building elevations meet the 1-foot above base flood elevation requirement. The City and State Department of Ecology keep records of all Flood Hazard Permits and Elevation Certificates to facilitate periodic audit by FEMA.

6.3. Discussion of Outstanding Issues

At present there are no substantial outstanding issues.

Staff has identified a housekeeping correction needed to clarify the regulations used to manage frequently flooded areas. The Draft CAO presently makes reference to the Flood Prevention Damage Program, Ordinance 87-20.

Staff recommends removing the reference to the adopting ordinance, in favor of referencing the Poulsbo Municipal Code section where these regulations are located. This will remove the need update the reference each time a revised ordinance is adopted. It will further provide direction for those accessing the City's Municipal Code as to where to locate the appropriate code provisions.

6.4. Decision Point

6.4.1. Staff Recommendation:

Staff recommends the following amendments to the Draft CAO Section 600:

The purpose of this Section is to protect the public health, safety and welfare from harm caused by flooding. It is also the intent to prevent damage and/or loss to both public and private property. Pursuant to this purpose, the City uses ~~City of Poulsbo Ordinance 87-20, Flood Prevention Damage Program,~~ Floodplain Management regulations contained in PMC Section 15.24, adopted by reference, which designates special flood hazard areas and establishes requirements for these areas.

6.4.2. Alternatives:

The change is a housekeeping measure. Should the Council prefer, the citation to the ordinance could simply be updated to reflect the 2005 ordinance, or Council could choose to include a reference to both the ordinance and PMC Section 15.24.

6.5. Conclusion

Poulsbo's development regulations prohibit residential and commercial development and all other encroachment in the FEMA floodway. Development in the 100-year floodplain is allowed provided the elevation of structures is at least one foot (1') above the established base flood elevation, compensatory storage is provided (i.e., no net fill), and no blockage of floodwaters occur that could impact neighboring properties (i.e., zero rise floodway). A Flood Hazard Permit is required for all development activity within the 100-year floodplain to document compliance with City regulations.

Public testimony before the City Council did not address Frequently Flooded Area protection measures as contained in the CAO and there is no alternative regulatory method before the Council for consideration.

6.5.1. Recommended Findings:

- 6.5.1.1. All development in floodways is heavily prohibited and/or strictly regulated to ensure the encroachment will not result in any increase in the flood levels during the occurrence of the base flood discharge.
- 6.5.1.2. The Floodplain Management Chapter (PMC 15.24) was updated in 2005 by the Flood Prevention Ordinance (Ordinance 2005-27). This ordinance was reviewed and approved by the Washington State Department of Ecology.
- 6.5.1.3. Poulsbo's flood hazard area mapping, classification and regulations have been developed with the consideration and inclusion of best available science and the method by which the City proposes to address flood hazard areas is compliant with the GMA.

6.5.2. Suggested Motion to Adopt Proposed Changes:

I move to (*accept*) (accept with modifications) (deny) the staff recommended changes in Section 6.4.1 and findings in Section 6.5.1 for Section 600 of the Critical Areas Ordinance.

7. General Provisions and Special Reports

7.1. Introduction

Section 100 General Provisions and Section 700 Special Reports contain supporting regulations for the chapters addressing specific critical areas. Section 100 General Provisions outline the intent of the Critical Areas Ordinance, and provide the framework for applying the regulations contained in the rest of the chapter. Section 700 Special Reports outlines the minimum reporting requirements for compliance with the chapter.

7.2. Assessment of Policies and Regulations

7.2.1. Comprehensive Plan Natural Systems Goals

Goal 1: To utilize the best available science to identify, protect and preserve the City's biological resources, with special consideration and attention to the sensitive, rare, threatened or endangered species of plant and wildlife and their habitats, and to work towards a balance between nature and human development.

Goal 2: To identify and manage significant hazards to assure the protection of the public's health, safety, general welfare and property.

Goal 3: To promote, through sound management principles, the utilization of the City's natural resources to enhance any economic benefit for the City as well as preserve the natural resources and ensure the minimum disturbance to the environment.

7.2.2. Mapping

Section 100 General Provisions provides that the City's Critical Area Maps are not intended to act as a determination that a critical area is or is not present on a given site. At best, the State (and City) mapping can provide a basis for large scale planning and an indication of likelihood of finding critical areas. The draft CAO states that maps are a "general guide only for the assistance of property owners and city administrators. The type, extent and boundaries shall be determined in the field by a qualified specialist or specialists according to the requirements of this Chapter." In all cases the actual conditions determine the presence of a critical area, not an indicator on the map.

Section 700 does not include mapping provisions; however, the delineations of critical area boundaries, governed by this section, will be utilized by staff in the future to refine the City's critical area maps.

7.2.3. Classification and Rating:

The critical areas in the City of Poulsbo are divided into the following types: wetlands, fish and wildlife habitat conservation areas, geologically hazardous areas, critical aquifer recharge areas and frequently flooded areas. Critical areas are more

specifically classified and rated in the chapters dealing with each category of critical area.

7.2.4. Development Regulations:

Section 100 provides regulations applicable to all critical areas within the City and further provides for the administration of the ordinance.

Section 700 includes the specific reporting requirements for critical area reports required in other sections. It includes minimum standards for wetland delineation reports, habitat management plans and other critical area specific reports.

7.3. Discussion of Outstanding Issues

7.3.1. Areas subject to Critical Area Review

Starting in Section 100 and continuing throughout the document, critical area applicability is determined based on a subject property containing or being within 200 feet of a critical area. The 200 foot number has been criticized, as the City is proposing buffers which exceed 200 feet in width for several types of critical areas. Staff has reviewed these dimensional criteria and found that certain wetland types do require buffers of 300 feet. This could conceivably allow development within a minimum buffer requirement based on the chapter not being applicable to the property.

7.3.2. Exemptions

The Working Group submitted a number of concerns related to Section 16.20.120 General Exemptions. These concerns included recommendations to remove allowances for existing manure lagoons and livestock ponds, and for forest practices. The working group went on to recommend exemptions for development adjacent to Poulsbo Creek, interrupted buffers and normal and routine maintenance. Interrupted buffers are addressed separately in section 7.2.3 below; this discussion is not repeated here. Poulsbo Creek is addressed in Chapter 3 of this document.

The existing exemption relating to manure lagoons and livestock water ponds is limited to normal and routine maintenance of such existing uses within the buffers. The exemption is not intended to allow for any expansion or alteration which might increase the impact of such uses if they exist. Additional language is recommended below to clarify this intent.

In regards to the exemption for forest practices, it is important to understand the State laws regarding such uses. The Draft CAO includes “Forest Practices conducted pursuant to RCW 76.09, except Class IV (general conversions) and Conversion Option Harvest Plans (COHP)” in the list of exemptions. This exemption was taken from the Model Ordinance provided by the State.¹ This guidance is based on the fact

¹ *Model Code Recommendations for Designating and Protecting Critical Areas*, Washington State Office of Community Development 2002, Pg 21.

that cities and counties do not necessarily have the authority to regulate such forest practices. This is of less concern than it appears on its face, as all forest practices in areas designated as urban growth areas are classified as either a class IV general conversion or a conversion option harvest plan, unless the landowner is able to document that they intend to maintain the forestry use of the site for 10 years.²

The Working Group requested insertion of an exemption for repair and maintenance of existing structures. The primary concern was that the draft CAO would make existing uses “temporary” or non-conforming.³ Inclusion of a maintenance and repair exemption for existing structures is consistent with guidance provided in the Model Ordinance provided by CTED.⁴ In adding this exemption it is important to clarify that normal repair and maintenance is limited by the standards for existing development.

7.3.3. Interrupted Buffers

The Working Group proposed insertion of an interrupted buffer provision for both wetland and fish and wildlife habitat conservation areas. Such an exemption would provide applicants with the opportunity to demonstrate that a buffer would not serve the intended purpose, due to existing development conditions that effectively separate the site from the buffer.

Staff recommends inserting an interrupted buffer exception that provides for site specific review of wetland and fish and wildlife habitat conservation area buffers that are intersected by permanent development such as roads. Where an applicant is able to demonstrate that the proposed activity is effectively separated by a permanent structure, and that no impacts will occur to the critical area as a result of the proposed development, buffer requirements may be waived on the subject site.

7.3.4. Existing Development

The Working Group recommended including provisions for existing uses to allow for reconstruction, expansions and new construction. While staff is unable to support the language as proposed by the working group, this recommendation raises an important policy issue that should be addressed. The draft CAO included existing development regulations which mirror the City’s non-conforming regulations contained in the zoning code. The intent of these regulations is premised upon the idea that such nonconformities are detrimental to the orderly development of the City and should over time be removed.⁵

GIS mapping overlays of stream buffers with existing land use and development patterns were included with the Working Group Recommendations.⁶ These overlays

² RCW 76.09.050

³ *Critical Area Ordinance Working Group Report to the City Council of Poulsbo: Review of Draft CAO July 2006*, Working Group, February 21, 2007

⁴ *Model Code Recommendations for Designating and Protecting Critical Areas*, Washington State Office of Community Development 2002, Pg 20.

⁵ Poulsbo Municipal Code Section 18.88.010

⁶ Maps submitted as a part of the *Critical Area Ordinance Working Group Report to the City Council of Poulsbo: Review of Draft CAO July 2006*, Working Group, February 21, 2007

show the impact on existing development if buffer widths are increased throughout the City. It is very apparent that increasing buffer widths in developed parts of the City would have the effect of creating a significant number of non-conforming uses and conditions versus the intended effect of creating a vegetated buffer width to protect stream and wetland functions. The staff recommendation for streams now includes a standard buffer width based on the State recommendations, with provisions to reduce the buffer to a Resource Management Area (RMA) based on a stream study and habitat management plan. More existing development will become nonconforming than under previous recommendations.

It is important to remember what the City's responsibilities are in protecting critical areas. The State has not mandated that the City restore the historic function and values that may have existed 50 or a 100 years ago. Rather, the City is charged with "developing policies and development regulations to protect the functions and values of critical areas. In addition, counties and cities shall give special consideration to conservation or protection measures necessary to preserve or enhance anadromous fisheries."⁷ Protection in this context is construed to mean measures designed to preserve the structure, values and functions of the natural environment or to safeguard the public from hazards to health and safety.⁸

To this end many jurisdictions have adopted policies that allow for remodeling and reconstruction of existing structures provided that no greater impact is made to the critical area and there is no increased risk to life or property. This approach is consistent with the model ordinance recommendations provided by CTED.⁹

The revisions proposed for existing uses attempt to strike a balance between the present draft which disallows any major remodeling or reconstruction (except for homes destroyed by fire or catastrophe), and possible provisions which would allow outright remodeling or reconstruction of such structures, without any consideration for opportunities that may exist to improve critical area function.

To this end staff has drafted revisions which would allow for normal maintenance and repair, up to 50% of the market value of the structure, as an exemption. Provisions have also been included for remodeling up to 50% of the market value of the structure provided the remodel may not introduce any new or expand existing impacts to the critical area. These changes will allow for moderate improvements to a home or business without triggering extensive critical area review. The 50% threshold has been used for consistency with the Floodplain Management regulations which require full compliance for improvements beyond 50% of the market value.

Remodels in excess of 50% of the market value and reconstruction are allowed for existing structures if mitigation is provided to reduce historic impacts to the critical area. Mitigations might include requirements to enhance vegetative areas adjacent to a critical area, or retrofitting existing impervious areas for minimum stormwater quality treatment. Where mitigation opportunities on site are limited, or improvements off site can be shown to better enhance the critical area at a watershed scale, off-site mitigations may be required in lieu of on site improvements.

⁷ RCW 36.70A.172 (1)

⁸ WAC 365-195-825

⁹ *Model Code Recommendations for Designating and Protecting Critical Areas*, Washington State Office of Community Development 2002, Pg 24.

The proposed revisions also allow for the reconstruction of residences destroyed by fire or catastrophe. This provision allows for relocating the structure if a better location exists on the site, to reduce impacts to the critical area, and requires that best management practices are used to protect the critical area during reconstruction. Staff did not include a provision to require mitigation for historic impacts, as this form of reconstruction is not considered a voluntary act and could be a considerable burden for a family burned out of their home.

The proposed approach will allow environmental protection and private property rights to co-exist in a beneficial way that will bring greater good to the environment and less harm to private property owners than the application of traditional nonconforming provisions. The allowances for existing development will provide property owners with options to improve their existing structures, provided that extensive changes will require mitigation of historic impacts. Over time, these provisions and the resulting mitigations will improve the existing function and value of the critical areas within the City.

7.3.5. Definitions: Low Impact Development

Discussions last fall before the City Council resulted in a recommendation to include a definition of Low Impact Development; the proposed definition has been included as per those discussions.

7.3.6. Definitions: Steep Slopes

Public testimony before the City Council addressed Geologic Hazard Area protection measures as contained in the CAO. The primary testimony involved the definition of steep slopes, and it was suggested the City adopt the following definition of steep slope:

“Steep slope: Any area with a slope of 40% or steeper with a vertical relief of 10 feet or more. A slope is delineated by establishing its toe and top and measured by averaging the inclination over 10 feet of vertical relief.”

The proposed definition appears to have been taken from WAC 365-190-080. This definition of slope is included as a part of the guidance from the state in designating Landslide Hazard Areas.

However, the use of the term “steep slope” in the proposed draft CAO is limited to Section 300: Fish and Wildlife Habitat Conservation Areas, which uses “steep slope” in reference to Reach specific RMA for South Fork of Dogfish Creek. The term “steep slope” is not used in Section 400: Geologically Hazardous Areas.

Therefore, it is not necessary to define a steep slope to protect geologic hazard areas; however, the intent of including only those slope areas which have 10 feet or more of vertical relief is appropriate to consider. The manner in which a slope is measured can have significant impact on a marginal property. The addition of a slope measurement definition would clarify that slopes must be measured over at least 10 feet of vertical relief. This would be consistent with WAC 365-190-080.

7.3.7. Definitions: Delete Un-used or Redundant Terms

The Draft CAO has been through a number of revisions. It appears that several definitions which were previously included in the Draft CAO are no longer included in the document. These terms include wetland determination and low impact activities. Staff does not recommend defining terms that are not utilized elsewhere within the ordinance.

7.4. Decision Point

7.4.1. Staff Recommendation:

Staff recommends the following amendments to the Draft CAO:

7.4.1.1. Areas Subject to Critical Area Review

7.4.1.1.1. Revise Draft CAO Section 16.20.115(D) to read as follows:

Any development proposal that includes a critical area or its buffer, or is within ~~200~~300 feet of a critical area is subject to review under the provisions of this Chapter.

7.4.1.1.2. Correct all such references throughout the document in the same manner.

7.4.1.2. Exemptions

7.4.1.2.1. Revise Draft CAO Section 16.20.120(B) to read as follows:

Existing and ongoing agricultural activities on lands containing critical areas. For the purpose of this Chapter, existing and ongoing means that the activity has been conducted within the past five years. Any expansion of agricultural activities shall conform to the provisions of this chapter.

7.4.1.2.2. Revise Draft CAO Section 16.20.120(C) to read as follows:

Normal and routine maintenance and operation of existing retention/detention facilities, biofilters and other stormwater management facilities, irrigation and drainage ditches, farm ponds, fish ponds, manure lagoons and livestock water ponds, provided that such activities shall not involve ~~conversion of any wetland~~ expansions or alterations that would increase the impact on or expand such uses further into critical areas not currently being used for such activity.

7.4.1.2.3. Revise Draft CAO Section 16.20.120(C) to read as follows:

Normal and routine maintenance of existing structures, landscaping and gardens provided they comply with all other regulations in this Chapter. Expansions, alterations, or repair in excess of 50% of the market value of the

improvement shall be reviewed under the provisions of 16.20.125 Standards for Existing Development.

7.4.1.3. Interrupted Buffers

7.4.1.3.1. Revise Draft CAO Section 16.20.120 as follows:

K. Interrupted wetland and stream buffers.

1. Where a legally established, pre-existing use of the buffer exists (such as a road or structure that extends into the regulated wetland buffer), those proposed activities that are within the wetland or stream buffer, but are separated from the critical area by an existing permanent substantial improvement, which serves to eliminate or greatly reduce the impact of the proposed activity upon the critical area are exempt provided that the detrimental impact to the critical area does not increase. However, if the impacts do increase, the Planning Director shall determine if additional buffer may be required along the impact area of the interruption. A substantial improvement may include, but is not limited to a paved area, dike, levee, or other permanent structure. An exemption request for an interrupted buffer may require a functional analysis report. In determining whether a functional analysis is necessary, the Planning Director shall consider the hydrologic and habitat connection potential and the extent and permanence of the interruption.
2. Where a legally established, pre-existing structure or use is located within a regulated buffer area and where the regulated buffer is fully paved and does not conform to the interrupted buffer provision above, the buffer will end at the edge of pavement, adjacent to the critical area.

7.4.1.4. Existing Development

7.4.1.4.1. Revise Draft CAO Section 16.20.125 to read as follows:

Existing development containing a critical area which was lawfully constructed, approved or established prior to the effective date of this Chapter, but which does not conform to present regulations or standards may continue as follows:

- A. A legally established, existing structure ~~nonconforming to~~ that does not meet the dimensional standards of this Chapter may not be enlarged or altered in any manner unless such enlargement or alteration is in conformance with the ~~buffer requirements of this chapter~~ following provisions. A critical areas permit, a Type 2 review, shall be required for any proposal which includes reconstruction or remodeling in excess of 50% of the market value.
- ~~B. A nonconforming mobile home may be replaced so long as the structure does not further encroach upon any required buffer or setback.~~

- B. Routine maintenance and repair of pre-existing legally established structures as authorized in Section 16.20.120 (J), Exemptions. Repair in excess of 50% of the market value of the structure shall be considered reconstruction. Routine repair and maintenance does not require a critical area permit.
- C. A legally established structure that has been made non-conforming due to the adoption of this code may be remodeled up to 50% of the market value so long as all of the following provisions are met:
 - 1. the remodel shall not introduce any new or expand existing impacts to a critical area unless such impacts are fully mitigated as required for reconstruction below; and
 - 2. all other standards and requirements contained in the PMC are met.
- D. Residential structures, including multifamily structures, in a residential zoning district, that are destroyed by a catastrophe or fire may be reconstructed up to the original size, placement and density. Structural repair must be initiated within two years of the catastrophe or fire, and all of the following provisions apply:
 - 1. the structure does not necessarily need to be rebuilt on the original footprint if it is determined that an alternative location on the lot will provide greater protection to the critical area; and
 - 2. Best Management Practices shall be employed to assure reconstruction does not negatively impact the critical area.
- E. Pre-existing legally established structures that have been made non-conforming due to the adoption of this code and that are located outside a flood hazard area and active landslide hazard area may be remodeled beyond 50% of the market value or reconstructed provided that such reconstruction and/or remodeling does not increase the footprint area nor extend beyond the existing ground coverage toward a critical area; and
 - 1. the reconstruction shall be appropriately mitigated to ensure the existing value and function of the critical area is not degraded, and further historic impacts of the existing site development shall be mitigated as per subsection E below; and
 - 2. the reconstruction and/or enlargement meets all other standards and requirement contained in the PMC
- F. Where mitigation is required above, the applicant shall provide mitigations to reduce historic impacts on the critical area which may include requirements to enhance vegetative areas adjacent to the stream, retrofit existing impervious areas for minimum stormwater quality treatment. Where mitigation opportunities on site are limited or improvements off site can be shown to better enhance the critical area at a watershed scale, off site mitigations may be required.
- G. Additional provisions affecting expansions of existing development along Poulso Creek are located in PMC 16.20.315(F).

- H. ~~A nonconforming structure which is damaged to an extent of fifty percent or more of its replacement cost may be restored only to conform with the provisions of this Chapter with the exception of the following:~~
 - i. ~~Residential structures, including multifamily, in a residential zoning district, destroyed by a catastrophe or fire, may be reconstructed up to the original size, placement and density. Structural repair must be completed within two years of the catastrophe.~~
- I. ~~Repairs may be made to any nonconforming structure or any portion of a structure containing a nonconforming use; provided, they are restricted to the repairs or replacement of structural elements, fixtures, wiring and plumbing required so as to protect occupants and public safety. The need for such repairs or replacements shall be confirmed by the building official. Structural enlargements may be allowed in conformity with the buffer and setback requirements of this Chapter.~~
- J. ~~Nothing in this Chapter shall be deemed to prevent the strengthening or restoration to a safe condition of any building or part thereof declared to be unsafe by any official charged with protecting the public safety and upon order of such official.~~

7.4.1.5. Definitions: Add Low Impact Development

7.4.1.5.1. Revise Draft CAO Section 16.20.155 Definitions to include:

Low Impact Development: Low impact development is a stormwater management and land development strategy applied at the parcel and subdivision scale that emphasizes conservation and use of on-site natural features integrated with engineered, small-scale hydrologic controls to more closely mimic predevelopment hydrologic functions.

7.4.1.6. Definitions: Add Steep Slopes

7.4.1.6.1. Revise Draft CAO Section 16.20.155 Definitions to include:

Slope, measurement: A slope is delineated by establishing its toe and top and measured by averaging the inclination over at least ten feet of vertical relief.

7.4.1.7. Definitions: Delete Un-used or Redundant Terms

7.4.1.7.1. Revise Section 16.20.155 Definitions as follows:

~~Low Impact Activities:~~ ~~Activities that do not require a development permit and/or do not result in any alteration of hydrology or adversely impact the environment.~~

~~**Wetlands Determination:** An on-site determination made by the City of Poulsbo and conducted by a wetland specialist as to whether a wetland exists on a specific parcel. A wetland determination may not require a formal delineation.~~

7.4.2. Alternatives:

- 7.4.2.1. Staff did not develop any alternatives.
- 7.4.2.2. The City could retain the existing language or alternatively could choose to allow reconstruction of such structures outright.
- 7.4.2.3. This provision could be omitted.
- 7.4.2.4. The alternatives would include maintaining the present language, or adopting provisions consistent with CTED's Model Ordinance.
- 7.4.2.5. Staff did not draft an alternative as this language was previously debated by City Council.
- 7.4.2.6. The change is a housekeeping measure intended to clarify the manner in which slope is measured. The alternative would be to omit the definition. The manner of determining slope would be established by planning policy which may vary over the years.
- 7.4.2.7. Staff did not develop an alternative. Staff does not support including definitions for terms not used elsewhere in the chapter.

7.5. Conclusion

7.5.1. Recommended Findings:

- 7.5.1.1. The City of Poulsbo's general critical area provisions have been developed with the consideration and inclusion of best available science, and are further compliant with the GMA.
- 7.5.1.2. The City of Poulsbo's special report requirements have been developed with the consideration and inclusion of best available science, and the method by which the City proposes to address special reports is compliant with the GMA.

7.5.2. Recommended Motion to adopt proposed changes:

I move to (*accept*) (accept with modifications) (deny) the staff recommended changes in Section 7.4.1 and findings in Section 7.5.1 for Section 100 and 700 of the Critical Areas Ordinance.

8. OTHER PROGRAMS PROTECTING CRITICAL AREA FUNCTIONS

8.1. Introduction

The City of Poulsbo takes a comprehensive approach to the protection of critical areas. Although this document focuses primarily on standards and regulations in the City's Draft Critical Area Regulations, there are other City regulations relating to stormwater, water quality, flood hazards and clearing and grading that also provide protection for critical area functions. In addition, Poulsbo actively protects critical areas through non-regulatory programs including: open space acquisition, capital improvement habitat enhancement projects, and habitat stewardship and public education.

8.2. Regulatory Programs

City regulations and standards that protect critical areas are found primarily in the Critical Area Regulations (PMC Chapter 16.20), Stormwater Management Policy (PMC Chapter 13.16), Clearing and Grading Code (PMC Chapter 15.35), and Flood Plain Management (PMC Chapter 15.24). The use of these provisions is discussed in the previous chapters of this document where they are applicable.

8.3. Parks and Open Space

Parks, recreational facilities and open space serve as vital parts of the community's character, as they provide both recreational opportunities for all citizens and habitat areas for wildlife. The Poulsbo Park and Open Space Plan identifies Poulsbo's existing park and open space resources, outlines the City's need for additional parks and open space, and incorporates a plan for acquisition and development that reflects a community vision.

8.3.1. *The Park and Open Space Plan*

The Poulsbo Park and Open Space Plan identifies the following goals, objectives and policies regarding open space:

Goal 3: Provide wise stewardship of the natural and cultural resources within Poulsbo parks and public open spaces.

Objective: Preserve and maintain existing parks and open space.

Objective: Maintain or create linking trail systems, open spaces, wildlife habitats and corridors.

Objective: Provide and promote environmental education into recreation programs and in parks and open spaces throughout Poulsbo.

Objective: Incorporate existing cultural resources into design features in parks and open spaces.

Policy 38: The City shall make efforts to acquire or otherwise preserve sites that have value for wildlife or watershed conservation, science, education, or have other significant natural amenities.

Policy 39: The City shall endeavor to obtain through purchase, lease and/or conservation easements, any available tidelands within the city limits. These may include agency-owned tidelands, tax-defaulted tidelands, and surplus federal tidelands.

8.3.2. *Park and Open Space Facilities*

Currently the City owns 55.82 acres of open space park property which provide habitat for a variety of wildlife and plant species. Open space parks include: Poulsbo's Fish Park, 13.36 acres located at the head of Liberty Bay; Nelson Park 11 total acres, 7 acres of shoreline open space; Hattaland Park, 1.5 acres open space; Morris Property, 2.4 acres adjacent to South Fork of Dogfish Creek; Wilderness Park, 11.56 acres of open space adjacent to South Fork of Dogfish Creek; and Indian Hills Park, 20 acres of open space (former landfill closed in 1976).

8.3.3. *Park and Open Space Acquisition and Improvements*

The 2006-2007 Parks Capital Improvement Program includes Poulsbo's Fish Park Property Restoration, which includes restoration of estuary areas, wildlife viewing, access trails and interpretive areas. Improvements are also planned for Nelson Park and the Morris Property.

8.4. Conclusion

The City utilizes a variety of mechanisms to protect critical area functions within the City. Stormwater provisions provide for aquifer recharge, and protect streams and wetlands from the potential effects of developments through retention, detention and treatment facilities. Grading regulations limit the removal of vegetation, require erosion control for all graded areas, and provide additional geotechnical standards. The Parks Department administers the City's park and open space acquisition program and further plans for long term habitat improvements in these open space areas.

No decision point is included in this chapter, as this chapter reflects existing programs and regulations conducted by the City which support and supplement the proposed Critical Areas Ordinance.

9. Conclusion

This Adoption document provides a summary documentation of Poulsbo's compliance with the letter and spirit of the State's requirements to include best available science in evaluating and developing policies and development regulations to protect critical areas.

9.1. Poulsbo's Best Available Science Literature Review

The Annotated Bibliography (in Appendix A) includes all the documents referenced in this Adoption Document. Appendix A includes both scientific and non-scientific references.

Appendix B includes a response to the GMA procedural criteria for adopting comprehensive plans and development regulations. Appendix B also includes the critical area ordinance best available Science bibliography which includes a large number of documents referenced during the CAO update including textbooks, published papers, journal articles, masters' degree theses, and agency guidance documents. It includes a majority of the references cited in the state list of BAS citations published by OCD in 2002 (*Citations of the Best Available Science for Designating and Protecting Critical Areas*) and Mr. Fishman's citations.

The CAO Best Available Science Bibliography fulfills the State's BAS requirements for using scientific expertise and a valid scientific process to determine reliable information to use in the evaluation of critical area regulations, and complies with the State's procedural criteria. WAC 365-195-905 through 910.

9.2. Critical Area Elements

Poulsbo's BAS Adoption document addresses each critical area element and assesses how existing policies and regulations meet scientific recommendations of BAS. The conclusions for each critical area element follow:

9.2.1. Wetlands

Poulsbo's wetland regulations (including wetland rating, buffer widths, impact avoidance, mitigation ratios) are supported by current best available science. The City's wetland regulations are based on the Department of Ecology's (DOE) publication *Wetlands in Washington State Volume 2: Guidance for Protecting and Managing Wetlands* (August 2004).

Poulsbo's wetland buffers and regulations, as recommended to be amended in Section 2.4.1 are within the range of recommendations of best available science to protect wetland functions and values.

9.2.2. Fish and Wildlife Habitat Conservation Areas

9.2.2.1. Streams and Shorelines

The Poulsbo BAS report identified a combination of measures that would protect fish and wildlife habitat along Poulsbo's stream corridors and shoreline, while recognizing the existing conditions and future needs of the urban area. These measures include identification of Resource Management Areas and associated setbacks within which development activities would be prohibited or limited and the prescription of Best Management Practices and actions that would improve existing conditions and ecological functions.

The recommendations of the Poulsbo BAS Report are supported by Best Available Science that recognizes the nature of urban watersheds and stream systems.

The Poulsbo BAS report identified ecological functions that need to be protected, on a stream reach basis, to maintain and protect habitat for native fish and wildlife. The recommendations also recognize that urban areas support a diversity of wildlife, and can support many native species if larger habitat patches exist, and connections between them are maintained.

Poulsbo's regulations to protect stream functions are consistent with the range of recommendations included in current best available science. However, the proposed revisions to Section 300 take a more conservative approach by requiring standard buffers as recommended by the State for all streams other than South Fork of Dogfish Creek. This conservative approach reflects the difference between a buffer and a RMA. The City still supports the RMA concept and proposes a method by which detailed stream reports may be accepted as BAS for a particular stream and then development may utilize the RMA recommendation in the stream report provided that the development implements upland protection measures to assure no loss of critical area function. This change reflects the fact that an RMA is not simply a smaller buffer, but one piece of an integrated protection system.

Because the Fishman Report cites legitimate scientific sources relevant to the Urban Environment and applicable to the City in support of the recommended RMA and associated setbacks for South Fork of Dogfish Creek, and standard buffer widths were taken from State recommendations, staff concludes that proposed stream RMA and associated setback contained in Table 4: Fish and Wildlife Habitat Conservation Areas Development Standards are within the range of recommendations of best available science to protect stream functions and values in the City.

9.2.2.2. Other Fish and Wildlife Conservation Areas

Poulsbo's policies and regulations for wildlife conservation areas meet GMA requirements for best available science. Scientific information has been included in the review and development of policies and standards.

Poulsbo uses information and mapping from the Priority Habitat and Species (PHS) program during review of development proposals and requires habitat

assessments to address site-specific conditions and issues. The City coordinates with the Department of Fish and Wildlife (WDFW) Priority Habitat and Species (PHS) Program to condition development based on WDFW management recommendations. Information and management recommendations from the PHS program represent best available science on wildlife habitat conservation areas.

The City of Poulsbo has protected significant areas of natural open space within the City to provide linkages between the riparian corridors within the City and along the Liberty Bay shoreline. These links or connections ameliorate the major impacts of urban development which is the fragmentation of habitat and loss of habitat connectivity.

9.2.3. Geologic Hazard Areas

Scientific information has been included in the development of policies and standards for geologically hazardous areas. Regulations and standards are consistent with best available science recommendations to protect public safety from significant risks of geologic hazards and to require mitigation of potential impacts.

The protection of steep slope areas also indirectly protects critical area functions by preserving vegetated areas for wildlife habitat, linking upland habitats to valley riparian areas, and allowing for groundwater infiltration providing a water source to wetlands and streams.

Poulsbo requires site-specific studies to evaluate the risk and potential impacts of development proposals in geologic hazard areas. Site-specific geotechnical reports are required to assess site conditions, evaluate risks and identify necessary mitigation and structural design recommendations. Independent, third-party review of an applicant's geotechnical report is often required. The site-specific information required to review development proposals qualifies as the best available science, both for providing relevant and accurate information about site conditions and identifying the mitigation measures to reduce the risk and impacts of a specific proposal.

9.2.4. Critical Aquifer Recharge Areas (CARA)

Poulsbo's proposed standards provide for protection of the aquifer, particularly in terms of minimizing the potential for contamination.

The development standards include a provision to prohibit land uses and activities that pose significant risk to groundwater quality. By the City requiring a hydrogeologic study where there is a concern about a proposal's potential impact to the aquifer or where a use contained in Table 5 is proposed within an area mapped as a Critical Aquifer Recharge Area, the City has taken appropriate measures to protect this important source of potable water. Any land use proposed from Table 5 would trigger SEPA review and the City's distribution of SEPA threshold determinations ensures Federal, State, County and tribal agencies are notified of proposed activities that may harm potable water sources. Agency comments are always considered by the City prior to making a recommendation on a land use proposal or decision.

9.2.5. Flood Hazard Areas

The Floodplain Management Chapter (PMC 15.24) was updated in 2005 by the Flood Prevention Ordinance (Ordinance 2005-27). This ordinance was reviewed and approved by the Washington State Department of Ecology.

Poulsbo's development regulations prohibit residential and commercial development and all other encroachment in the FEMA floodway. Development in the 100-year floodplain is allowed provided the elevation of structures is at least one foot (1') above the established base flood elevation, compensatory storage is provided (i.e., no net fill), and no blockage of floodwaters occur that could impact neighboring properties (i.e., zero rise floodway). A Flood Hazard Permit is required for all development activity within the 100-year floodplain to document compliance with City regulations.

9.3. Other Programs Protecting Critical Area Functions

Poulsbo takes a comprehensive approach to the protection of critical areas. The BAS Adoption document focuses primarily on standards and regulations in the Draft Critical Area Regulations. Other City regulations that protect critical areas include standards for stormwater, water quality, flood hazards, clearing and grading, and erosion controls. In addition, Poulsbo actively protects critical areas through non-regulatory programs including: open space acquisition, capital improvement habitat enhancement projects, and habitat stewardship and public education.

APPENDIX A: Annotated Bibliography for Adoption Document ¹

Bergum, Bob, for the Johnson Creek Association. August 22, 2006. Letter to City of Poulsbo Planning Department (w/attachments).

Letter expressing the concerns of Mr. Bergum and the Johnson Creek Association regarding the draft Critical Areas Ordinance. Two attachments include informational document from Washington Department of Fish and Wildlife regarding local habitat assessment, and a map from the Kitsap County Department of Community Development showing Fish and Wildlife assessment of habitat value in the local area. Map appears to have been provided by the WDFW.

Central Puget Sound Growth Management Hearings Board: *DOE/CTED, 05334*, FDO.

CPSGMHB Case No. 05-3-0034 (*05334*), Final Decision and Order, (April 19, 2006). Petitioners challenged the City of Kent's revised wetland regulations, specifically its wetlands exemption, its wetlands ranking system and its wetland buffer requirements. The Board found noncompliance with the GMA on all three issues and remanded.

Central Puget Sound Growth Management Hearings Board: *HEAL, 6312*, FDO.

Order on Remand [Court of Appeals Division I, Remand of Case No. 40939-5-I and Mandate of Superior Court Case No. 9602-24695-6.SEA], (Oct. 4, 2001). The Court of Appeals directed the Board to determine whether the City of Seattle's steep slope *policies* complied with the best available science requirements of RCW 36.70A.172(1). [Note: The Board had previously found that the City's critical areas (steep slope) regulations complied with .172(1).] The Board found that the steep slope policies complied with the GMA.

Central Puget Sound Growth Management Hearings Board: *Hood Canal, 0612c*, FDO.

(Aug. 28, 2006). Kitsap County updated its critical area regulations as required by the GMA; Petitioners challenged them as being both too lax and too stringent and not based upon BAS. The Board concluded that the County's designation of marine shorelines as critical areas complied with the GMA but that the County's exemption of certain wetlands and its marine shoreline buffers did not comply with the GMA and the Board remanded.

Central Puget Sound Growth Management Hearings Board: *Pilchuck II, 93-5347c*, FDO.

(Dec. 6, 1995). The challenged portions of Snohomish County's critical areas ordinance were upheld, except for: its failure to designate and protect all critical areas; define fish and wildlife habitat areas, and its exemption process, which were remanded.

Central Puget Sound Growth Management Hearings Board: *Seattle Audubon, 06324*, FDO.

CPSGMHB Case No. 06-3-0024 (*06324*), Final Decision and Order, (Dec. 11, 2006). Seattle's critical areas regulations designated as geologically hazardous areas only landslide-prone areas, steep slopes and liquefaction zones despite the fact that the record included BAS on other seismic hazards. Petitioners challenged this defect, among others, in the City's

¹ Please note that this annotated bibliography includes all documents cited in the Adoption Document, including both scientific and non-scientific sources. A separate CAO Bibliography of Best Available Science is included as a part of Appendix B.

critical areas update. The Board agreed with Petitioner, finding the City noncompliant with the GMA and remanded.

Central Puget Sound Growth Management Hearings Board: Tulalip, 96329, FDO.
CPSGMHB Case No. 96-3-0029 (6329), Final Decision and Order, (Jan. 8, 1997). The challenged portions of Snohomish County's amendments to its critical areas regulations were upheld.

City of Poulsbo. June 13, 1994. Comprehensive Plan.

The Comprehensive Plan was developed to meet the requirements of the Growth Management Act per RCW 36.70A.010 et. Seq. and Chapter 365-195 WAC. The Comprehensive Plan has been updated several times, and will be further updated in 2007 for consistency with the revised CAO when adopted.

City of Poulsbo. February 21, 2007. Critical Areas Ordinance Working Group Report.

This report was the result of an informal citizens' working group that developed and presented recommendations for consideration by the City Council, based upon the July 2006 draft CAO.

City of Poulsbo. July 14, 2006. Planning Commission Recommended Draft Critical Areas Ordinance.

The proposed CAO would replace Poulsbo Municipal Code Chapter 16.20 (Critical Areas) in its entirety. The draft contains a revised wetland section that utilizes the new buffer alternatives recommended by the Washington State Department of Ecology.

City of Poulsbo, Planning Department. April 5, 2005. Summary Response to Comment Letters and Staff Recommendation for Revision to the May 26, 2004 Draft Critical Areas Ordinance. Memorandum to Planning Commission et al.

Staff analysis and response to comment letters received from state agencies and members of the public regarding the draft Critical Areas Ordinance dated May 26, 2004.

Clark, J.R. 1977. Coastal Ecosystem Management: A Technical Manual for the Conservation of Coastal Zone Resources. New York, NY: John Wiley & Sons.

This reference manual for coastal management professionals analyzes the variety of coastal environments, identifies conflicts between land use and ecosystem management, and provides management methodology and hard data for situational application.

Davis, Jeff, for the Washington Department of Fish and Wildlife. March 22, 2007. Correspondence to the City of Poulsbo.

Correspondence from the Washington Department of Fish and Wildlife addressing the characteristics and classification of Poulsbo Creek.

Deeter, Jerald D. May 1979. The Quaternary Geology and Stratigraphy of Kitsap County. [Master's Thesis]. Bellingham, WA: Western Washington University.

This work analyzed the Quaternary Period stratigraphy of Kitsap County's geologic composition, focusing on the effects of the Quaternary sheet glaciation that reshaped the area's topography. The majority of the local area is covered with Quaternary deposits related to this glaciation, which are typically loose till soils prone to erosion and landslide.

Desbonnet, Alan, Pamela Pogue, Virginia Lee, Nicholas Wolff. 1994. Vegetated buffers in the coastal zone, a summary review and bibliography. Coastal Resource Center, Rhode Island Coastal Sea Grant, University of Rhode Island.

This report summarizes the scientific literature up to 1994 on the effectiveness of different buffer widths at maintaining the functions of aquatic resources. It also summarizes the functions provided by different buffer widths.

DeStefano, S., R.M. DeGraaf. 2003. Exploring the ecology of suburban wildlife. *Frontiers in Ecology and the Environment*, 1(2): 95-101.

This article examines the co-existence of wildlife and suburban development which is widespread in developed nations. Some adapt well, and some do so well that their populations grow to the point of overabundance, causing property damage and threatening human health and safety. Still others, particularly species with specific habitat requirements, low reproductive capability, or sensitivity to disturbance, cannot cope with increased human densities and become rare or locally extinct. The author analyzes our need to understand the complexity of suburban environments as ecosystems for humans and wildlife.

Fishman Environmental Services, LLC, Buell & Associates, Inc. April 2003. Report on best available science and recommended protection measures for fish and wildlife habitat. Prepared for: City of Poulsbo, Washington.

The City is required to apply best available science when developing the policies and regulations of the CAO. This report provides a scientific background and recommended protection measures for the City's critical areas.

Funk, Anya, for the City of Poulsbo. June 6, 1995. Unnamed Stream (Flowing from 11th Ave, through Hostmark Apartments, & Along 6th Ave to Outfall at Yacht Club). Memorandum to file.

Memorandum documenting information obtained from the Washington Department of Fish and Wildlife regarding Poulsbo Creek.

Granger, T., T. Hruby, A. McMillan, D. Peters, J. Rubey, D. Sheldon, S. Stanley, E. Stockdale. April 2005. Wetlands in Washington State - Volume 2: Guidance for Protecting and Managing Wetlands. Washington State Department of Ecology. Publication #05-06-008. Olympia, WA.

This document contains options and recommendations for managing and protecting wetlands based on the synthesis of the science presented in Volume 1. The document is geared primarily toward local governments for use in revising critical area ordinances. It includes methods for landscape analysis and contains specific guidance on subjects such as buffer widths, wetland rating, ratios for compensatory mitigation, suggested regulated activities and exemptions, tools for wetland stewardship, etc.

Hennings, L.A., W.D. Edge. 2003. Riparian bird community structure in Portland, Oregon: habitat, urbanization and spatial scale patterns. *The Condor*: 105288-302.

A study by an avian ecologist on native and non-native bird populations in relation to riparian habitat structure and spatial characteristics in the Portland Metro region.

Hruby, Thomas, PhD. August 2004. Washington State wetland rating system for western Washington (revised). Washington State Department of Ecology.

This rating system is primarily intended for use with vegetated, freshwater wetlands as identified using the State of Washington delineation method (WAC 173-22-080). It was designed to differentiate between wetlands in western Washington based on their sensitivity to disturbance, their significance and rarity, the ability to replace them, and the functions they provide. The rating categories are intended to be used as the basis for developing standards for protecting and managing wetlands to reduce further loss of their value as a resource.

King County. February 2004. Best available science. Volume I, a review of science literature. Critical areas, stormwater and clearing and grading proposed ordinances. This reference document provides an overview of best available science applicable to the development of ordinances for critical areas, stormwater management, and clearing and grading.

Kitsap County Department of Community Development and City of Poulsbo Planning Department. December 17, 2001. City of Poulsbo sub area plan. The sub area plan was prepared in accordance with the Growth Management Act to designate an unincorporated Urban Growth Area (UGA) for the City, establish how the unincorporated area will develop, and provide regulations and standards for that development. The UGA is sized to accommodate the City's population growth allocated by Kitsap County consistent with GMA.

Kitsap County. 1991. Kitsap County ground water management plan. The plan includes an analysis of significant groundwater resources, management methodologies, and future use.

Klapproth, J.C., J.E. Johnson. 2000. Understanding the science behind riparian forest buffers. Virginia Cooperative Extension, Virginia Polytechnic Institute and State University. This article analyzes the beneficial functions and requirements for riparian forest buffers. Riparian forests protect water quality by reducing the amount of sediment, nutrients, and other pollutants that enter streams, lakes, and other surface waters. Riparian buffers should be considered as part of a unified land management plan, including sediment and erosion control and nutrient management practices.

Knutson, K.L., V.L. Naef. 1997. Management recommendations for Washington's priority habitats: riparian. Prepared for: Washington Department of Fish and Wildlife. This synthesis from the Washington Dept. of Fish and Wildlife provides statewide riparian management recommendations based on the best available science. Riparian habitat provides a vital and important resource to Washington's fish and wildlife. This document synthesizes more than 1,500 pieces of literature to develop land use recommendations that accommodate riparian-associated fish and wildlife. Among these are riparian buffer width recommendations.

MacMillan, A. 2000. The science of wetland buffers and its implications for the management of wetlands [Master's Thesis]. Olympia, WA: The Evergreen State College. Document summarizes the science pertaining to the importance of wetland buffers written specifically for local jurisdictions. Provides guidance on developing buffer regulations including specific language for buffer protection, reduction and averaging, and describes activities that should/should not be allowed within buffers. Provides recommendations for

buffer widths using the Dept. of Ecology's 4-tiered rating system and a 2-tiered level of proposed land use intensity (high/low).

National Research Council. 2002. *Riparian Areas, Functions and Strategies for Management*. Washington, DC: National Academy Press.

The Clean Water Act (CWA) requires that wetlands be protected from degradation because of their important ecological functions including maintenance of high water quality and provision of fish and wildlife habitat. However, this protection generally does not encompass riparian areas, the lands bordering rivers and lakes, even though they often provide the same functions as wetlands. Growing recognition of the similarities in wetland and riparian area functioning and the differences in their legal protection led the NRC in 1999 to undertake a study of riparian areas, which has culminated in *Riparian Areas: Functioning and Strategies for Management*. The report is intended to heighten awareness of riparian areas commensurate with their ecological and societal values. The primary conclusion is that, because riparian areas perform a disproportionate number of biological and physical functions on a unit area basis, restoration of riparian functions along America's water bodies should be a national goal.

O'Sullivan, Alison, for the Suquamish Tribe. March 14, 2007. Correspondence to City of Poulsbo.

Correspondence from the Suquamish Tribe regarding the draft Critical Areas Ordinance. The letter addresses, among other issues, appropriate wetland buffers and preservation of small or isolated wetland areas.

Pentec Environmental. 2001. *Use of best available science in City of Everett buffer regulations*. Prepared for: City of Everett Planning and Community Development.

Provides an overview and analysis of best available science used in the City of Everett critical areas ordinance regarding habitat buffers.

Schueler, T.R. 1995. *Site planning for urban stream protection*. Center for Watershed Protection, Metropolitan Washington Council of Governments.

The document presents a watershed approach to site planning, examining new ways to reduce pollutant loads and protect aquatic resources through non-structural practices and improved construction site planning. Assesses the importance of imperviousness, watershed-based zoning, the concentration of development, headwater streets, stream buffers, green parking lots, and other land planning topics.

SWCA Environmental Consultants, Inc. September 2006. *Proposed Natural Resource Buffers for Lemolo Creek Corridor, Poulsbo, WA*. Prepared for: Team 4 Engineering, Poulsbo, Washington.

Assessment of the existing riparian and stream conditions of Lemolo Creek, and recommendations for adequate buffers to protect existing ecological functions of these resources.

SWCA Environmental Consultants, Inc. February 2007. *Technical Memorandum: Ecological Conditions and CAO Recommendation for North Fork of Johnson Creek Corridor, Poulsbo, WA*. Prepared for: North Fork Johnson Creek Stakeholders.

Study of existing conditions of the Johnson Creek corridor and recommendations for appropriate protection measures, including buffers, to be included in the City of Poulsbo Critical Areas Ordinance.

Timber, Fish and Wildlife Caucus [USFWS, NMFS, EPA, Office of the Governor of the State of Washington, DNR, WDFW, DOE, Colville Confederated Tribes, Washington State Association of Counties, WFPA, WFFA]. April 29, 1999. Forest and fish report. Prepared for: Washington State Forest Practices Board and the Governor's Salmon Recovery Office. Washington's 11-member Forest Practices Board is the entity responsible for making and updating forest practices rules. In February 1999, the timber industry, government agencies and some tribes agreed to the proposal called the Forests and Fish Report. They proposed SH 2091 which establishes the Forests and Fish Report as the guiding document for the new rules. This legislation passed into law in May 1999. The legislation states "When adopting permanent rules...the Forest Practices Board is strongly encouraged to follow the recommendations of the Forests and Fish Report." The Forest and Fish Report includes an adaptive management process that will provide for the Forest Practices Board to change state rules (and thus the HCP) over time according to the results of scientific research. SH 2091 goes one step further, mandating that the Board adopt that adaptive management process, and limiting future rule changes to those that conform to its recommendations.

United States Congress. 1972, 1977. Clean Water Act, 33 U.S.C. § 1251, et seq. (aka Federal Water Pollution Control Act).

The Act is the primary federal law in the United States governing water pollution. The act established the goals of eliminating releases to water of toxic amounts of toxic substances, eliminating additional water pollution by 1985, and ensuring that surface waters would meet standards necessary for human sports and recreation by 1983. The system for granting and regulating discharge permits is called the National Pollutant Discharge Elimination System (NPDES), which regulates both point and non-point sources that discharge pollutants into waters of the United States.

United States Department of Agriculture, Soil Conservation Service. 1977. Soil Survey of Kitsap County Area, Washington.

This survey classifies the soil types found in Kitsap County and provides guidance on their characteristics and limitations.

Wenger, S., L. Fowler. 2000. *Protecting Stream and River Corridors: Creating Effective Local Riparian Buffer Ordinances*. Athens, GA: Carl Vinson Institute of Government Public Policy Research Series, University of Georgia.

The purpose of this paper is to support the efforts of local governments in Georgia that have made policy decisions to develop riparian buffer programs. This paper is intended to help local governments develop effective, comprehensive riparian buffer ordinances that, properly administered, will not generate takings claims. A model ordinance is included.

Washington State Department of Community, Trade and Economic Development. July 2001. Citations of the best available science for designating and protecting critical areas.

Reference guide for local governments containing recommended best available science resources.

Washington State Department of Community, Trade and Economic Development. November 2003. Critical areas assistance handbook.

Reference guide for local governments regarding the identification and protection of critical areas through the regulatory process.

Washington State Department of Community, Trade and Economic Development. 2002. Model code recommendations for designating and protecting critical areas.

Examples and models of approved language for use by local governments in designating and protecting critical areas.

Washington State Department of Ecology. June 1979. Coastal Zone Atlas of Washington, Volume 10 (Kitsap County).

The Coastal Zone Atlas is intended to assist local governments with their Shoreline Management Planning efforts. Information includes geospatial data for the state's coastal region, including available information on biological features such as wetlands and underwater grass beds, and physical features including drift cells and slope stability data.

Washington State Department of Ecology. 1998. Guidance document for the establishment of critical aquifer recharge areas ordinances.

Outlines specific language and provisions that should be included in a CARA ordinance. Defines methods for assessing aquifer susceptibility as a basis for determining which land use activities should be allowed in/near recharge areas. Describes the type and extent of site-specific evaluations that may be needed to evaluate individual development proposals. This document focuses upon the establishment of critical areas ordinances necessary to protect groundwater quality and ensure that sufficient aquifer recharge occurs to maintain the quantities necessary to support groundwater's use as a potable water source.

Washington State Department of Ecology. March 1997. Washington State wetlands identification and delineation manual.

Provides guidance on wetland delineation methods using the three parameters of hydrology, soils and vegetation. Required for use by state and local jurisdictions (RCW 36.70A.175) and is generally consistent with the U.S. Army Corps of Engineers 1987 manual, since it is a revised version of the 1987 manual.

Washington State Department of Ecology. 2002. Washington State wetlands mitigation evaluation study – phase 2, evaluating success.

Phase 2 of the wetland mitigation evaluation was to examine the ecological success of wetland mitigation projects in Washington State. The study included an evaluation of 24 compensatory wetland mitigation projects. The successes of the projects were rated according to two factors: 1) achievement of ecologically relevant measures, and 2) adequate compensation for the loss of wetlands. One of the findings of the study suggests regulatory agency follow up results in mitigation projects with a higher success rate. The results of the study showed enhancement projects to be highly unsuccessful.

Washington State Office of Financial Management. June 29, 2006. Population of cities, towns and counties, April 1, 2000 - April 1, 2006.

A tabular presentation of the population of cities, towns and counties over a six-year period, with summarized growth rates.

Williams, J.D., C.K. Dodd, Jr. 1979. Importance of wetlands to endangered and threatened species. *Wetland Functions and Values: The State of Our Understanding*. Middleburg, VA: American Water Resources Association.

The importance of wetland habitats to certain endangered and threatened plants and animals of the United States is reviewed and examples of endangered and threatened reptiles, amphibians, fishes, and birds dependent on wetlands are discussed. The role of the American alligator in shaping some wetland habitats is greater than its commercial value. The status of wetland habitats in desert areas of the southwestern United States is examined and Ash Meadows, Nevada, is used as an example to illustrate the precarious nature of 49 of these habitats. On a national basis, the percentage of endangered and threatened species dependent on wetlands is presented by major taxonomic groups. Without increased protection of wetland habitats, many of our endangered and threatened species may disappear before the end of the century.

Wong, Stanley L. W., Richard H. McCuen. 1982. *The Design of Vegetative Buffer Strips for Runoff and Sediment Control*. Annapolis, MD: Coastal Resources Division, Tidewater Administration, Maryland Department of Natural Resources.

This study analyzes the design of vegetative buffer strips to reduce runoff volume and sediment loading as an economical alternative to detention basins for the management of stormwater runoff. A mathematical model was developed which includes the variables that reflect important design factors for vegetative buffer strips, including soils characteristics and cover complex characteristics. A graphic representation is provided for the relationship between sediment trapping efficiency, the length and slope of the buffer strip, and the roughness coefficient of the vegetation. The ability of buffer strips to reduce runoff volume is also examined. The reduction in the runoff volume occurs as the vegetation impedes and retards the flow of water, allowing a portion of it to infiltrate into the soil. The rate of infiltration is a function of: 1) the condition of the vegetative cover, 2) the properties of the underlying soil, 3) the rainfall intensity, and 4) antecedent soil conditions. These factors act in an interrelated manner to affect the amount of water that infiltrates into a buffer strip.

APPENDIX B:

GMA Procedural Criteria and CAO Best Available Science Bibliography

B.1 GMA Procedural Criteria for Adopting Comprehensive Plans and Development Regulations

The Washington State Office of Community Development (OCD) adopted administrative rule guidance to assist cities and counties in identifying and including the best available science in adopted policies and regulations and in their periodic review and evaluation and in demonstrating they have met their statutory obligations under RCW 6.70A.172(1). The procedural criteria are listed in WAC Chapters 365195-900 through 925. The City of Poulsbo's compliance with the procedural criteria is addressed below.

B.1.1 WAC 365-195-900: Background and Purpose.

Findings

- B.1.1.1 The City has completed the review of best available science as part of the City's Critical Areas Ordinance update.
- B.1.1.2 The City included best available science in the review and development of policies and regulations to protect critical area functions and values. This is documented in the body of the Fishman Report and the Adoption Document.
- B.1.1.3 The City has given "special consideration" to conservation and protection measures necessary to preserve or enhance anadromous fisheries.

B.1.2 WAC 365-195-905: Criteria for determining which information is the best available science

Findings

- B.1.2.1 The City contracted with Fishman and Buell to provide technical/scientific assistance to identify, collect and review available literature and data related to streams within the City limits and establish what sources of best available science are applicable to Poulsbo.
- B.1.2.2 The Annotated Bibliography's prepared by Fishman and Planning staff summarizes numerous documents including textbooks, published papers, journal articles, masters' degree theses, agency guidance documents, and other literature that are believed to be relevant to the City of Poulsbo. The majority of the documents cited are included in the Citations of Recommended Sources of Best Available Science for Designating and Protecting Critical Areas- Final Report (Office of Community Development 2002). The other citations collected by Mr. Fishman and staff were derived from other current scientific sources

such as research, inventory, resource assessments, surveys, models, and expert opinion. These documents possess one or more of the following characteristics:

- They have been peer reviewed
- They use accepted methods
- They contain logical conclusions
- They include quantitative analysis
- They are based on citations of relevant literature

The citations noted in the bibliography meet the criteria for best available science as defined by the Washington Administrative Code (365-195-905).

B.1.3 WAC 365-195-910: Criteria for obtaining the best available science

Finding

- B.1.3.1 As stated above, the Annotated Bibliography's prepared for the City by Fishman and staff included the State list of BAS citations published by OCD. It also includes citations from other natural resource agencies assessed as representing best available science.

B.1.4 WAC 365-195-915: Criteria for including the best available science in developing policies and development regulations

- (1) *"To demonstrate that the best available science has been included in the development of critical areas policies and regulations, counties and cities should address each of the following on the record:"*
- (a) *"The specific policies and development regulations adopted to protect the functions and values of the critical areas at issue."*

Findings

- B.1.4.1 The Adoption document Report goes through each critical area element required under GMA and discusses the specific policies and regulations that are adopted, or proposed to be adopted, to protect the functions and values of critical areas.

The Adoption document supports the contention that Poulsbo's policies and proposed development regulations adequately protect critical areas and are within the range of scientific recommendations as reviewed from the various sources of best available science.

(b) *“The relevant sources of best available scientific information included in the decision-making.”*

Finding

B.1.14.2 The CAO Bibliography (Section A.2 of this document) includes the full list of scientific information that was considered in the development of Poulsbo’s critical area regulations and other standards protecting critical areas. Scientific information and recommendations are also cited under each critical area element in the Adoption document Report, where specifically related to or supportive of the report analysis and conclusions.

(c) *“Any nonscientific information – including legal, social, cultural, economic, and political information – used as a basis for critical area policies and regulations that depart from the recommendations derived from the best available science. A county or city departing from science-based recommendations should:”*

(i) *“identify the information in the record that supports its decision to depart from science-based recommendations;”*

Finding

B.1.4.3 In determining appropriate buffer standards for Poulsbo Creek and the Commercial segment of the North Fork of Dogfish Creek within the City that are surrounded by full build out and established neighborhoods the City took an approach based on mitigation and enhancement versus “paper” buffers that would provided no benefit to the stream systems.

(ii) *“explain its rationale for departing from science-based recommendations”;*

Finding

B.1.4.4 The City does not believe this approach is a departure from BAS. Applying impractical and meaningless large buffers to streams that have been significantly degraded and the City believes that a Resource Management approach based on “incentive” to maintain, and hopefully enhance, these stream functions and values is more beneficial to the critical area than large buffers that would make hundreds of properties non-conforming at the cost of millions of dollars to private property owners.

(iii) *“identify potential risks to the functions and values of the critical area or areas at issue and any additional measures chosen to limit such risks”.*

Findings

B.1.4.5 Class 3 streams – Due to existing urban/developed conditions in Poulsbo, smaller streams and tributaries do not provide the same functions as in rural and agricultural environments and therefore buffers associated with these streams are not as essential to providing the same support functions. For example, one of the main functions of small streams is to contribute organic materials, detrital input, and woody debris to downstream systems. Culverts and barriers presently isolate stream reaches from transporting nutrients and woody debris downstream. Water quality functions (i.e. stormwater treatment/pollutant removal) are not as necessary because in most of the City stormwater enters piped systems thereby bypassing buffers. The City’s runoff and erosion controls and stormwater regulations are more important to protecting water quality than Class 3 stream buffer widths.

B.1.4.6 Preliminary conclusions from our GIS mapping indicates that developed areas of the City are generally built up to the buffer standard that was required when the development was approved. In some area, particularly in “Old Town” and along the SR 305 commercial corridor no buffers were required when the development in these areas was approved. Therefore, in many areas of Poulsbo, an increase in buffer width standards would mostly have an effect of creating non-conforming conditions versus the intended effect of adding vegetated buffer width to protect stream and wetland functions.

(2) *Counties and cities should include the best available science in determining whether to grant applications for administrative variances and exemptions from generally applicable provisions in policies and development regulations adopted to protect the functions and values of critical areas.*

Finding

B.1.4.7 Poulsbo’s draft CAO includes provisions that provide flexibility to standard code requirements with consideration of site-specific conditions. All of the code provisions which allow for modifications from standard requirements mandate making findings that impacts to property and critical areas would be eliminated or minimized and also the deviation from the standards would not negatively impact critical area values or functions. Site-specific information is required for all applications requesting administrative variances or modifications from standard critical area buffers or other requirements. For example, wetland buffer averaging will only be considered after a functional analysis is prepared by a qualified wetland scientist that requires appropriate mitigation and/or enhancement to the wetland and makes specific finding that

averaging would not adversely impact the value and function of the specific wetland.

B.1.5 WAC 365-195-920: Criteria for addressing inadequate scientific information

Findings

B.1.5.1 The Fishman and Staff Annotated Bibliography's include many excellent sources of scientific information that apply to the City of Poulsbo. Our evaluation and findings indicate there is not an absence of valid scientific information or incomplete scientific information related to the City's proposed regulation for the protection of critical areas.

B.1.6 WAC 365-195-925: Criteria for demonstrating "special consideration" has been given to conservation or protection measures necessary to preserve or enhance anadromous fisheries.

Findings

B.1.6.1 Fishman conducted a stream analysis of the City major stream systems. One of the primary objectives of the study was to collect baseline information to aid in assessing stream functions and processes for the purpose of informing science-based regulatory protections consistent with state and federal laws, including the Growth Management Act (GMA), Shoreline Management Act (SMA), and Endangered Species Act (ESA).

For the mainstem of Dogfish Creek, the Dogfish Creek Estuary, the report includes an instream habitat survey and evaluation of habitat conditions. This level of detail was concentrated on Dogfish Creek because it is the City's largest stream system and is known to support anadromous fish. While Dogfish Creek meanders through the main highway commercial core and has been subject to many relocation efforts, one of which is occurring at this moment, it still provides fish habitat. The areas of the stream that support fish have been assigned a 75 - 125 foot buffer. Areas of the stream that are not reachable by fish or that do not support fish for a variety of reasons have been assigned a 75- 125 foot buffer to protect water quality. These buffer widths are well within the guidelines of BAS.

For Poulsbo Creek the City has taken more of a management approach due to the fact that the land adjacent to this creek is completely built out. While fish have not been reported to populate this creek system in recent times, it still has certain attributes that could support anadromous fish. The resource management approach proposed by the City for this creek will assist in not only maintaining the existing value and function of the creek, but will in most instances help to enhance the creek environment which will hopefully lead to fish repopulating the creek system.

For Johnson Creek, which to the most part remains within the City's unincorporated UGA, the City has adopted the State's recommended buffer as a

default buffer to be applied once the land is annexed into the City. Land owners can apply for a reduction of this buffer standard to a standard recommend by Fishman if all of the recommended mitigation and enhancement work is completed. However, in no case will the buffer along this creek be allowed to be less than 100 feet – within the range of appropriate buffer size to protect streams that support anadromous fish and which is supported by BAS.

B.2 CAO Best Available Science Bibliography

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