



**CITY OF EDGEWOOD
REGULAR COUNCIL MEETING AGENDA**

Tues., May 8, 2018 – 7:00 pm. ♦ City Hall – 2224 104th Avenue East ♦ Edgewood, WA

1. CALL TO ORDER

Pledge of Allegiance, Roll Call, Additions/Deletions

2. PUBLIC HEARING - (pg. 3)

AB18-019 - Ordinance No. 17-0513, relating to compliance with the Growth Management Act (GMA), Chapter 36.07A RCW, incorporating the City's mandatory update of its Critical Areas regulations, as required by RCW 36.70A.130(7)(B); repealing Title 14 – Critical Areas of the Edgewood Municipal Code (EMC) and replacing it with a new Title 14; repealing EMC Chapter 15.10

3. Part V – Welcome to your Pierce County Contract! Now, what do you get?

4. AUDIENCE COMMENT

5. MAYOR'S REPORT

6. CONSENT AGENDA: (pg. 517) *The consent agenda includes items that are routine in nature and are adopted by one motion. Should Council wish to discuss a consent agenda item, the item would be removed from the consent agenda and discussed under Council Business.*

The following items are presented for Council approval:

A. Regular City Council Meeting Minutes of April 24, 2018,

B. Study Session Meeting Minutes of May 1 2018.

C. AB18-020, a motion approving May 2018 Budgeted Expenditures as follows: Deferred Compensations Program; Payroll Direct Deposit; Dept. of Retirement Systems; IRS 941 ACHs; and AWC Employee Benefit Trust in the amount of \$75,231.79; and Vendor Check Numbers 23259 through 23277 with EFT Payments in the amount of \$51,592.32. Total distributions submitted for review & authorization in the amount of \$126,824.11

D. AB18-021 (pg. 532), a motion to authorize the Mayor to execute the Morgan Sound purchase order 2018013 in the sum of \$54,745.32

7. COUNCIL BUSINESS

A. AB18-0403 (pg. 534), a motion to adopt Resolution No. 18-0403, establishing all-way stop control at the intersection of 24th Street East and 122nd Avenue East

B. AB18-0404 (pg. 556), a motion to adopt Resolution No. 18-0404, establishing all-way stop control at the intersection of 36th Street East and 122nd Avenue East

C. AB18-0405 (pg. 586), a motion to adopt Resolution No. 18-0405, establishing all-way stop control at the intersection of 48th Street East and Chrisella Road East

D. AB18-0523 (pg. 616), a motion to adopt Ordinance No. 18-0523, relating to subdivisions, adding procedures for alterations and vacations of approved subdivisions and approved binding site plans, describing the elements of a complete application, criteria for approval, effect of approval and requirements for recording, pursuant to RCW 58.17.212 and 58.17.215 adding a new Chapter 16.07 to the Edgewood Municipal Code

This meeting is accessible to persons with disabilities. For individuals who may require special accommodations, please contact City Hall at (253) 952.3299, 24 hours in advance.

E. AB18-022 *(pg. 635)*, a motion to approve the 2018 Comprehensive Plan Final Docket

F. AB18-023, a motion authorizing the Mayor to approve the 1st Quarter Financial position statements & attachments to be posted on the city website and made available as a public document *(documents will be provided at meeting)*

8. COUNCIL COMMENTS

9. EXECUTIVE SESSION– Pursuant to RCW 42.30.110(1)(i) - pending litigation

10. ADJOURN



CITY OF EDGEWOOD

PUBLIC HEARING

AGENDA ITEM: Ordinance 18-0513 Critical Areas

Date: May 8, 2018
Title: **Public Hearing** – Critical Areas Ordinance (CAO) Code Amendment

Attachments:

- 1) Initial Redlined Draft from ESA
- 2) A. Nix Draft post Public Hearing
- 3) A. Nix Draft Redlined
- 4) A. Nix Draft Redlined - Clean
- 5) Critical Areas Maps
- 6) Draft Ordinance

Submitted by: Darren Groth, Community Development Director
Approved For Agenda by: Daryl Eiding, Mayor

Recommendation: Hold a public hearing to solicit input on the proposed amendments.

Fiscal Impact: None

Discussion

The City of Edgewood contracted with Environmental Sciences Associates (ESA) to update its Critical Areas Ordinance (CAO) in accordance with the requirements of the Growth Management Act. ESA reviewed best available science regarding the City's critical areas and assisted the City with revisions to Edgewood Municipal Code (EMC) Title 14. The work ESA performed was completed within three tasks.

Under Task 1, ESA reviewed existing conditions, current critical area regulations, regulatory agency requirements and guidelines, and relevant best available science. ESA, with its team partners, developed recommendations for revising the CAO based on our review of best available science, our experience with other critical areas ordinances, and recent agency guidelines.

Task 2 charged ESA with a review and update to existing critical areas inventory mapping datasets, where information changed. These maps were updated using existing publicly-available data sources from the City, Pierce County, State of Washington (WDNR, WDFW and Ecology), and federal agencies. After City review and approval of the recommended code revisions developed in Task 1, ESA proposed revisions to the City's current CAO regulations. The final task, Task 3, was the initial redlined draft from ESA that is included as Exhibit 1.

The Planning Commission (PC) held a public hearing on the modified draft code on August 21, 2017. City staff incorporated the PC comments and refined the CAO draft for discussion during the October 17, 2017 City Council meeting. The refined CAO draft is attached as Exhibit 2 and served as the basis for City Council's public hearing on November 14, 2017. Once the lingering public comments and the input from City Council's hearing were incorporated into the drafted code, major modifications were necessary. The result of the major modifications led staff to request City Council to remand this item back to the Planning Commission for another public hearing.

On March 30, 2018, the City sent a copy of the latest draft code, both the redlined and clean drafts (Exhibits 3 and 4, respectively), to the Washington State Department of Commerce (DOC), as required by RCW 36.70A.106(1). On April 3, 2018, the DOC confirmed the City met the procedural requirements and processed the request with material ID # 24770.

On April 16, 2018, the PC held a public hearing on the updated draft. The ESA consultants, the Washington Department of Ecology, and the City Attorney Office all provided comments in conjunction with the PC hearing. Those comments and any received during the City Council hearing on May 8 will be incorporated into the final draft ordinance.

Title 14
CRITICAL AREAS

Chapters:

- 14.10 General Provisions**
- 14.20 Use and Activity Regulations**
- 14.30 Wetlands**
- 14.40 Critical Fish and Wildlife Habitat Areas**
- 14.50 Aquifer Recharge and Wellhead Protection Areas**
- 14.60 Volcanic Hazard Areas**
- 14.70 Flood Hazard Areas**
- 14.80 Landslide Hazard Areas**
- 14.90 Seismic (Earthquake) Hazard Areas**
- 14.110 Erosion Hazard Areas**
- 14.500 Natural Resource Lands**

The Edgewood Municipal Code is current through Ordinance 17-498, passed April 11, 2017.

Chapter 14.10
GENERAL PROVISIONS

Sections:

14.10.010 Authority.

~~14.10.020 Repeal.~~

~~14.10.025 Title.~~

14.10.030 Purpose.

14.10.040 Interpretation.

~~14.10.045 Best Available Science.~~

14.10.050 Applicability.

14.10.060 Definitions.

14.10.070 Administration.

~~14.10.075 Relationship to Other Regulations.~~

14.10.080 Critical area protective measures.

14.10.085 Variances to critical areas.

14.10.090 Reconsideration and appeal procedures.

14.10.100 Fees.

14.10.110 Compliance.

14.10.120 Warning and disclaimer of liability.

14.10.130 Severability.

14.10.135 Violation – Civil infraction.

14.10.140 Appendixes.

~~14.10.150 Figures.~~

14.10.010 Authority.

~~A. This title is established and adopted pursuant to the Growth Management Act (RCW 36.70A.060).~~

~~B. As provided herein, the director or his/her designee is given the authority to interpret and apply, and the responsibility to enforce this title to accomplish the stated purpose.~~

~~This title is established and adopted pursuant to:~~

~~A. Environmental policies and procedures for this title are established pursuant to Chapter 43.21C RCW, as amended and entitled the “State Environmental Policy Act” (SEPA), and Chapter 197-11 WAC, as amended and entitled “State Environmental Policy Act Rules”; and~~

~~B. The city adopts by reference WAC 197-11-300 through 197-11-800; and~~

~~C. Chapter 173-22 WAC; and~~

~~D. Chapter 86.16 RCW; and~~

~~E. The Growth Management Act (RCW 36.70A.060); and~~

~~F. The Tri-County Response to the 4(D) Rule Land Management Development Regulations; and~~

~~G. RCW 36.70A.172, Critical areas—Designation and protection. (Ord. 02-200 § 2).~~

~~14.10.020 Repeal.~~

~~The current EMC Title 19, Shoreline Management, and EMC Title 20, Critical Areas, are hereby repealed in their entirety and EMC Title 20 is replaced with this title (effective December 24, 2002). Repeal of EMC Title 20 does not affect any existing permits, land use applications or requirements, or existing enforcement actions. (Ord. 02-200 § 2).~~

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The Edgewood Municipal Code is current through Ordinance 17-498, passed April 11, 2017.

14.10.025 — Title.

~~The current EMC Title 14, Environment, is hereby renamed EMC Title 20, SEPA, and the new EMC Title 14 shall be known as EMC Title 14, Critical Areas (effective December 24, 2002). (Ord. 02-200 § 2).~~

14.10.030 Purpose.

The purpose of this title is to protect environmentally sensitive critical areas of Edgewood from the impacts of development and protect development from the impacts of hazard areas by establishing minimum standards for development of sites which contain or are adjacent to identified critical areas and thus promote the public health, safety, and welfare by:

- A. Avoiding impacts to critical areas;
- B. Mitigating unavoidable impacts by regulating development;
- C. Protecting critical areas from impacts of development;
- D. Protecting the public against losses from:
 - 1. Costs of public emergency rescue and relief operations where the causes are avoidable; and
 - 2. Degradation of the natural environment and the expense associated with repair or replacement;
- E. Preventing adverse impacts on water availability, water quality, wetlands, and streams;
- F. Protecting unique, fragile, and valuable elements of the environment, including critical fish and wildlife habitat;
- G. Providing department staff with sufficient information to adequately protect critical areas and proposed development when approving, conditioning, or denying public or private development proposals;
- H. Providing the public with sufficient information and notice of potential risks associated with development in natural hazard critical areas; and
- I. Implementing the goals and requirements of the ~~Growth Management Act (RCW 36.70A.060)~~~~Growth Management Act of 1990, the State Environmental Policy Act, the Puget Sound Water Quality Management Plan, the Pierce County Charter, the Pierce County Interim Growth Management Policies; and~~ the city of Edgewood comprehensive plan, and all updates and amendments, functional plans, and other land use policies formally adopted or accepted by the city of Edgewood.

~~J. This title also consolidates procedures and regulations that shall promote compatibility between the natural and built environment within the city of Edgewood. Chapters within this title detail the procedures for activities related to critical areas and natural resource lands. (Ord. 02-200 § 2).~~

14.10.040 Interpretation.

In the interpretation and application of this title, all provisions shall be:

- A. Considered the minimum necessary;
- B. Liberally construed to serve the purposes of this title; and
- C. Deemed neither to limit nor repeal any other powers under state statute. (Ord. 02-200 § 2).

14.10.045 Best Available Science.

Critical area reports and decisions to alter critical areas shall be based on the best available science to protect the functions and values of critical areas and must give special consideration to conservation or protection measures necessary to preserve or enhance anadromous fish, such as salmon and bull trout, and their habitat.

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14.10.050 Applicability.

A. This title shall apply to all lands and waters within Edgewood that are designated as critical areas and their corresponding buffer and setback.

B. No development (see “development” definition) shall hereafter be affected without full compliance with the terms of this title.

C. When the requirements of this title are more stringent than those of other Edgewood codes and regulations, including the International Building Code, the requirements of this title shall apply.

D. Compliance with these regulations does not remove an applicant’s obligation to comply with applicable provisions of any other federal, state, or local law or regulation.

E. Criteria for determining critical areas is contained within each chapter of this title.

F. When a site contains two or more critical areas, the site shall meet the minimum standards and requirements for each identified critical area as set forth in this title.

G. Critical areas, as defined and regulated by this title, are identified, but not limited to the following Edgewood critical areas ~~atlas maps~~:

1. ~~Wetland inventory maps~~Wetlands; and
2. ~~Landslide hazard area maps~~Geologically hazardous areas; and
3. ~~Erosion hazard area maps~~Critical aquifer recharge areas; and
4. ~~Seismic hazard area maps~~Streams; and
5. ~~Volcanic hazard area maps~~Frequently flooded areas.; and
6. Aquifer recharge and wellhead protection areas maps; and
7. Fish and wildlife habitat, and stream typing area maps; and
8. Flood hazard area maps; and
9. Resource lands maps; and
10. Soils maps; and
11. ~~FIRM (flood insurance rate maps) maps.~~

H. The exact boundary of each critical area depicted on the City’s critical areas ~~atlas maps~~ is approximate and is only intended to provide an indication of the presence of a critical area on a particular site. Additional critical areas that have not been mapped may be present on a site. The actual presence of a critical area, or areas and the applicability of these regulations shall be determined based upon the classification or categorization criteria and review procedures established for each critical area. City staff and/or consultant(s) may conduct on-site inspections to assess the site in order to determine if additional studies or reports identified in this title are necessary. An inspection report of findings shall be written after the on-site inspection and will become a part of any site development application as a future reference.

I. The Edgewood critical areas atlas maps shall be updated and maintained by the city’s department of community development geospatial information system (GIS) division.

~~J. Development of the city’s critical areas atlas maps were derived from the sources listed in EMC 14.10.140, Appendix A. These sources may be updated from time to time and will result in a correlating update to the applicable critical areas atlas maps. (Ord. 02-200 § 2).~~

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14.10.060 Definitions.

A. This title shall rely on the definitions contained in Chapter 18.20 EMC, Definitions. The city also adopts by reference the definitions stated in WAC 197-11-700 through 197-11-799 as now or hereafter amended. In addition, the definitions in subsection (B) of this section shall also apply:

B. Additional definitions that apply to this title are:

“Abutting” means bordering upon, to touch upon, in physical contact with. Sites are considered abutting even though the area of contact may be only a point.

~~Act. See “State Environmental Policy Act (SEPA).”~~

~~“Actions” include, as further specified below:~~

- ~~1. New and continuing activities (including projects and programs) entirely or partly financed, assisted, conducted, regulated, licensed, or approved by agencies;~~
- ~~2. New or revised agency rules, regulations, plans, policies, or procedures; and legislative proposals. Actions fall within one of two categories:~~
 - ~~a. Project Actions. Involves a decision on a specific project, such as a construction or management activity located in a defined geographic area. Projects include and are limited to agency decisions to:~~
 - ~~i. License, fund, or undertake any activity that will directly modify the environment, whether the activity will be conducted by the agency, an applicant, or under contract;~~
 - ~~ii. Purchase, sell, lease, transfer, or exchange natural resources, including publicly owned land, whether or not the environment is directly modified.~~
 - ~~b. Nonproject Actions. Involve decisions on policies, plans, or programs:~~
 - ~~i. The adoption or amendment of legislation, ordinances, rules, or regulations that contain standards controlling use or modification of the environment;~~
 - ~~ii. The adoption or amendment of comprehensive land use plans or zoning ordinances;~~
 - ~~iii. The adoption of any policy, plan, or program that will govern the development of a series of connected actions (WAC 197-11-060), but not including any policy, plan, or program for which approval must be obtained from any federal agency prior to implementation;~~
 - ~~iv. Creation of a district or annexations to any city, town or district;~~
 - ~~v. Capital budgets; and~~
 - ~~vi. Road, street, and highway plans.~~

~~“Actions” do not include the activities listed above when an agency is not involved, or include bringing judicial or administrative civil or criminal enforcement actions (categorical exemptions in WAC 197-11-800 identify in more detail governmental activities that would not have any environmental impacts and for which SEPA review is not required).~~

~~“Activity” means any use conducted on a site.~~

~~“Addendum” means an environmental document used to provide additional information or analysis that does not substantially change the analysis of significant impacts and alternatives in the existing environmental document. The term does not include supplemental EISs. An addendum may be used at any time during the SEPA process.~~

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Consider pulling the Definitions Section out into a new section 14.20 Definitions.

“Addition” means an alteration to an existing structure that increases the floor area. There are two types of additions: additions affixed to the side of an existing structure and an upper story addition.

~~“Adjacent” means within 500 feet from the exterior boundaries of designated resource lands pursuant to RCW 36.70A.060.~~

~~“Aggrieved person” means the project sponsor, or any person affected by the proposal.~~

“Agricultural activities” means the production of crops and/or raising or keeping livestock, including operation and maintenance of farm and stock ponds, drainage ditches, irrigation systems, and normal operation, maintenance, and repair of existing serviceable agricultural structures, facilities, or improved areas, and the practice of aquaculture. Forest practices regulated under Chapter 76.09 RCW and WAC Title 222 are not included in this definition.

“Agricultural land” means land primarily devoted to the commercial production of horticultural, viticultural, floricultural, dairy, apiary, vegetable, or animal products or of berries, grain, hay, straw, turf, seed, Christmas trees not subject to the excise tax imposed by RCW 84.33.100 through 84.33.140, finfish in upland hatcheries, or livestock, and that has long-term commercial significance for agricultural production.

~~“Alluvial geologic unit” means geologically recent (Holocene) stream, lake, swamp, and beach deposits of gravel, sand, silt, and peat.~~

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“Animal containment area” means a site where two or more animal units of large animals per acre or 0.75 of an animal unit of small animals per acre are kept, and where a high volume of waste material is deposited in quantities capable of impacting groundwater resources.

“Animal unit” means the equivalent of 1,000 pounds of animal.

“Appeal” means a request for a review of the interpretation of any provision of this chapter, per EMC 14.10.090.

“Applicant” means any person or entity, including an agency, applying for a license from an agency.

“Application” means a request for a license.

“Aquifer” means a saturated geologic formation, which will yield a sufficient quantity of water to serve as a private or public water supply.

~~“Aquifer recharge area” means areas that have a critical recharging effect on groundwater used for potable water supplies and/or that demonstrate a high level of susceptibility or vulnerability to groundwater contamination from land use activities. Examples of aquifer recharge areas include:~~

- ~~1. Wellhead protection areas delineated pursuant to the Federal Safe Drinking Water Act; and~~
- ~~2. Other areas with a high level of susceptibility or vulnerability to contamination as demonstrated through the use of the DRASTIC (see DRASTIC) model.~~

“Area of shallow flooding” means areas designated as AO or AH zones on the FIRM(s). AO zones are characterized as sheet flows, having base flood depths that range from one to three feet above the natural ground, where a clearly defined channel does not exist, the path of flooding is unpredictable and indeterminate, and velocity flow may be evident. AH zones indicate similar depth ponding, shown with standard base flood elevations on the FIRM(s).

“Area of special flood hazard” means land in the floodplain within a community subject to a one percent or greater chance of flooding in any given year. Designation on FIRM(s) always includes the letter A or V.

“Base flood” means the flood having a one percent chance of being equaled or exceeded in any given year, also referred to as the “100-year flood,” and is designated on FIRM(s) by the letter A or V.

“Basement” means any area of the building having its floor sub-grade (below ground level) on all sides, for the purposes of this title.

~~“Best available science” means scientific information applicable to the critical area prepared by local, state, or federal natural resource agencies, a qualified scientific professional, or team of qualified scientific professionals that is consistent with criteria established in WAC 365-195-900 through WAC 365-195-925, as defined by WAC 365-195-905, Criteria for determining which information is the “best available science.”~~

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~~“Best available technology” means the technology that provides the greatest degree of protection to the natural resource, taking into consideration processes that are developed, or could feasibly be developed given overall reasonable expenditures on research and development, and processes that are currently in use. In determining what is best available technology, the local government shall consider the effectiveness, engineering feasibility and commercial availability of the technology.~~

~~“Best management plan” means a plan developed for a property, which specifies best management practices for the control of animal wastes, stormwater runoff, and erosion.~~

~~“Best management practices” means conservation practices or systems of practices and management measures that:~~

- ~~A. Control soil loss and reduce water quality degradation caused by high concentrations of nutrients, animal waste, toxics and sediment;~~
- ~~B. Minimize adverse impacts to surface water and ground water flow and circulation patterns and to the chemical, physical, and biological characteristics of wetlands;~~
- ~~C. Protect trees and vegetation designated to be retained during and following site construction and use native plant species appropriate to the site for re-vegetation of disturbed areas; and~~
- ~~D. Provide standards for proper use of chemical herbicides within critical areas.~~

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~~“Breakaway wall” means a wall that is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces, without causing damage to the elevated portion of the building or supporting foundation system.~~

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~~“Buffer” means an area contiguous with a critical area that is required for the integrity, maintenance, function, and structural stability of the critical area.~~

~~“Building footprint” means the horizontal area measured within the outside of the exterior walls of the ground floor of all principal and accessory buildings on a lot.~~

~~“Cave” means a natural subterranean chamber greater than one foot in diameter and greater than three feet deep.~~

~~“City” means the city of Edgewood.~~

~~“Class” means one of the wetland classes in the United States Fish and Wildlife Service (USFWS) December 1979 publication, Classification of Wetlands and Deep Water Habitats of the United States.~~

~~“Classification” means defining value and hazard categories to which critical areas and land resource lands will be assigned.~~

~~“Clearing” means the removal of timber, brush, grass, ground cover, or other vegetative matter from a site, which exposes the earth’s surface on the site.~~

~~“Cliff” means a steep vertical or overhanging face of rock or earth greater than 25 feet in height.~~

~~“Colluvium” means loose materials deposited by gravity on the face of or at the foot of a slope (e.g., talus, soil creep, etc.).~~

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~~“Compensatory mitigation” means mitigation to compensate for loss of wetland habitat due to filling of wetlands or other regulated activities in wetlands replacing project-induced losses or impacts to a critical areas.~~

“Conservation easement” means a recorded deed restriction or covenant that runs in perpetuity on a parcel of land restricting the use of the property by preventing future real estate development such as residential, industrial, or commercial use. Conservation easements may allow for continued current uses (e.g., residential, recreational, agriculture, forestry, or ranching); however, conservation easements most often restrict both the current use as well as future uses of the land to some important conservation quality such as habitat preservation, open space, or scenic views. A land trust or governmental entity that manages properties for long-term goals typically holds conservation easements.

“Contaminant” means any chemical, physical, biological, or radiological substance that does not occur naturally or occurs at concentrations and duration as to be injurious to human health or welfare or shown to be ecologically damaging.

“Council” means the Edgewood city council.

“County” means Pierce County.

“Crawl space” means the shallow space beneath the bottom floor of a house with no basement; used for access and inspection of framing, electrical, plumbing, insulation, vapor barriers, or duct work. For purposes of the National Flood Insurance Program Elevation Certificate, a crawl space that has subgrade around all sides shall be considered a basement.

~~“Creation” means producing or forming a wetland through artificial means from an upland (nonwetland) site.~~

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

~~“Critical areas” means the following areas and ecosystems: (a) Wetlands; (b) areas with a critical recharging effect on aquifers used for potable water; (c) fish and wildlife habitat conservation areas; (d) frequently flooded areas; and (e) geologically hazardous areas, erosion, landslide, seismic, volcanic, and flood hazard areas; streams; wetlands; fish and wildlife habitat; and aquifer recharge and (depressional) pothole areas as defined by RCW 36.70A.030. All of these areas are of special concern to the people of Edgewood and the state of Washington.~~

“Critical facilities” means those facilities occupied by populations or which handle dangerous substances including but not limited to hospitals, medical facilities, nursing homes; structures housing, supporting, or containing toxic or explosive substances; covered public assembly structures; school buildings through secondary, including daycare centers; buildings for colleges or adult education; police, fire, and emergency response installations; jails and detention facilities; and all structures with occupancy of greater than 5,000 people. These facilities are such that even a slight chance of flooding might be too great. Essential public facilities (as defined under [EMC 18.20.080](#) and [18.100.050](#)) are considered critical facilities, for floodplain management purposes.

“Debris flow” means the rapid downslope movement of a viscous mass of water-saturated ~~regolith~~ sediments.

“Degraded” means to have suffered a decrease in naturally occurring functions and values due to activities undertaken or managed by persons on or off a site.

“Delineation” means a wetland study conducted in accordance with the ~~approved federal wetland delineation manual and applicable regional supplements~~ Corps of Engineers Wetlands Delineation Manual 1987 edition and corresponding guidance letters and the Washington State Wetlands Identification and Delineation Manual.

“Delineation report” means a written document prepared by a wetland specialist, which includes data sheets, findings of the delineation, and a site plan, which identifies the wetland boundaries.

“Department” means ~~any division, subdivision, or organizational unit of the city, established by regulations, resolution or order.~~ the City of Edgewood Department of Community Development.

“Depressional pothole” means a relatively sunken or low-lying area of the earth’s surface, especially one having no natural outlet for surface drainage.

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~~“Designation” means taking formal legislative action to adopt classifications, inventories, and regulations.~~

~~“Determination of”:~~

~~1. Nonsignificance (DNS).~~

~~2. Significance (DS).~~

~~3. Mitigated determination of nonsignificance (MDNS).~~

“Development” means any human-induced change to improved or unimproved real property, including but not limited to: the construction of buildings or other structures, placement of a manufactured home/mobile home, mining, dredging, clearing, filling, grading, paving, excavation, drilling operations, storage of equipment or materials located within an area of special flood hazard, or activities otherwise governed by EMC Title 16, Subdivisions.

“Development activity” means any construction, development, earth movement, clearing, or other site disturbance of the land, except as listed under exemptions.

~~“Director” means the mayor or designee, the director of the city of Edgewood Department of Community Development or his/her designee.~~

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~~“Downed logs” means trees that have fallen or toppled which are dead or in the process of dying, and exhibit sufficient decay characteristics to enable use by fish or wildlife species as habitat. Also referred to as “large woody debris (LWD).”~~

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“DRASTIC” is an acronym for a computer model developed by the National Water Well Association and Environmental Protection Agency used to measure aquifer susceptibility.

~~“Drift” means a nearly horizontal mine passageway driven on or parallel to the course of a vein or rock stratum.~~

“Dwelling unit” means one or more rooms designed for or occupied by one family for living or sleeping purposes and containing kitchen facilities for use solely by one family.

“Earth/earth material” means naturally occurring rock, soil, stone, sediment, or combination thereof.

~~“Earthflow” means a slow downslope movement in which of viscous, saturated regolith sedimentssags downward in a series of irregular terraces.~~

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~~“Ecotone” means a transition area between two adjacent vegetation communities.~~

“Elevated building” means, for insurance purposes, a nonbasement building that has its lowest elevated floor raised above ground level by foundation walls, shear walls, posts, piers, pilings, or columns.

“Elevation certificate” means the official form (FEMA Form 81-31) used to track development, provide elevation information necessary to ensure compliance with community floodplain management ordinances, and determine the proper insurance premium rate with Section B completed by community officials.

“Encroachment” means any development or regulated activity conducted inside the boundaries of a designated critical area and/or its associated buffer.

“Engineer” as defined by Chapter 18.43 RCW.

“Engineering geologist” means a geologist who, by reason of his or her knowledge of engineering geology, acquired by education and practical experience, is qualified to engage in the practice of engineering geology, has met the qualifications in engineering geology established under Chapter 18.220 RCW, and has been issued a license in engineering geology by the Washington State Geologist Licensing Board.

“Engineering geology” means a specialty of geology affecting the planning, design, operation, and maintenance of engineering works and other human activities where geological factors and conditions impact the public welfare or the safeguarding of life, health, property, and the environment.

“Enhancement” means ~~actions performed within an existing degraded critical area and/or buffer to intentionally increase or augment one or more ecological functions or values of the existing area. Enhancement actions include, but are not limited to, increasing plant diversity and cover; increasing wildlife habitat and structural complexity (snags, woody debris); installing environmentally compatible erosion controls; removing non-native plant or animal species; or removing human-made structures or fill that are degrading ecological functions or values.~~ ~~actions performed to improve the condition of existing degraded wetlands and/or buffers so that the quality of wetland functions increases (e.g., increasing plant diversity, increasing wildlife habitat, installing environmentally compatible erosion controls, removing nonindigenous plant or animal species, removing fill material or solid waste).~~

“Environmental determination” means that the responsible official or proponent has determined whether or not there are significant adverse effects on quality of the environment and if so, can they be mitigated.

“Environmental Impact Statements (EISs) — Types.” See Chapter 197-11 WAC, SEPA Rules.

“Environmental Review.” See Chapter 197-11 WAC, SEPA Rules.

“Erosion” means the wearing away of the earth’s surface as a result of the movement of wind, water, or ice.

“Erosion hazard areas” means those areas that because of natural characteristics, including vegetative cover, soil texture, slope, gradient, and rainfall patterns, or human-induced changes to such characteristics, are vulnerable to erosion.

“Excavation” means the mechanical removal of earth material.

“Existing manufactured home park or subdivision” means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed before the effective date of the adopted floodplain management regulations.

“Expansion to an existing manufactured home park or subdivision” means the preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).

“Extirpation” means ~~the elimination of a species from a portion of its original geographic range.~~

“Facility” means all structures, contiguous land, appurtenances, and other improvements on the land used for recycling, reusing, reclaiming, transferring, storing, treating, disposing, or otherwise handling a hazardous substance. Use of the term “facility” includes underground and aboveground tanks and operations, which handle, use, dispose of, or store hazardous substances.

“Fill/fill material” means a deposit of earth material placed by human or mechanical means.

“Filling” means the act of placing fill/fill material on any surface, including temporary stockpiling of fill material.

“Finished floor” means the top of the next higher floor above the lowest floor. For purposes of the National Flood Insurance Program Elevation Certificate, the finished floor referenced in this regulation shall equal the top of the next higher floor.

“Fish and wildlife habitat conservation areas” ~~means those areas identified as being of critical importance to maintenance of fish, wildlife, and plant species, including areas with which endangered, threatened, and sensitive species have a primary association; habitats and species of local importance; naturally occurring ponds under 20 acres and their submerged aquatic beds that provide fish or wildlife habitat; waters of the state; lakes, ponds, streams, and rivers planted with game fish by a governmental or tribal entity, or private organization; state natural area preserves and natural resource conservation areas. This does not include such artificial features or constructs as irrigation~~

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~~delivery systems, irrigation infrastructure, irrigation canals, or drainage ditches that lie within the boundaries of and are maintained by a port district or an irrigation district or company means areas necessary for maintaining species in suitable habitats within their natural geographic distribution so that isolated subpopulations are not created as designated by WAC 365-190-080(5). "Fish and wildlife habitat conservation areas" does not include such artificial features or constructs as irrigation delivery systems, irrigation infrastructure, irrigation canals, or drainage ditches that lie within the boundaries of and are maintained by a port district or an irrigation district or company.~~

"Fisheries biologist" means a professional with a degree in fisheries or certification by the American Fisheries Society, or with five years' professional experience as a fisheries biologist.

"Flood" or "flooding" means a general and temporary condition of partial or complete inundation of normally dry land areas from:

1. The overflow of inland or tidal waters; and/or
2. The unusual and rapid accumulation of runoff of surface waters from any source.

~~"Flood hazard areas" means areas of flooding identified by verifiable flooded areas using:~~

1. Aerial photographs of the city, especially those taken in wintertime 1996 and 1997; ~~or~~
2. Relevant and verifiable information from the city's capacity analysis technical review adhoc committee (CATRAC) draft report, 2000; ~~or~~
3. Relevant and verifiable government and citizen photographs, notes, observations, etc. regarding historic ponding/flooding levels; ~~or~~
4. Relevant and verifiable information available through Pierce County; ~~or~~
5. Relevant and verifiable information available through the Federal Emergency Management Agency (FEMA); or
6. Areas of land located in floodplains, which are subject to a one percent or greater chance of flooding in any given year, including, but not limited to, streams, rivers, lakes, ponds, wetlands, depression potholes and the like.

"Flood Insurance Rate Map (FIRM)" means the official map on which the Federal Insurance Administration (FIA) has delineated both the areas of special flood hazard and the risk premium zones applicable to the community.

"Flood Insurance Study (FIS)" means the official report provided by the Federal Insurance Administration (FIA) that includes flood profiles, FIRM(s), and the water surface elevation of the base flood.

"Flood fringe" means the area subject to inundation by the base flood, but outside the limits of the floodway, and which may provide needed temporary storage capacity for floodwaters.

"Floodplain" means the total area subject to inundation by the base flood, including the flood fringe and the floodway areas.

"Floodway" means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to convey and discharge the base flood without cumulatively increasing the water surface elevation by more than one foot, and those areas designated as deep and/or fast-flowing water.

~~"Fluvial processes" means the physical interaction of flowing water and the natural channels of rivers and streams.~~

"Foundation footing setback" means a typical geotechnical recommendation intended to assure that a proposed structure is protected in the event of a slope failure or sloughage. A foundation footing setback is measured horizontally from the face of the foundation footing to the face of the slope. A foundation footing setback for this

purpose should not be confused with a building or construction setback from a landslide hazard area buffer. A foundation footing setback is also not a buffer. (see Figure 14.10-1 in EMC 14.10.150).

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

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"Geological assessment" means an assessment prepared by a professional engineer licensed by the state of Washington with expertise in geotechnical engineering or prepared by a licensed professional geologist, hydrologist, or soils scientist, as specified later in this section, who has earned the related bachelor's degree from an accredited college or university, or equivalent educational training, and has five years' experience assessing the relevant geologic hazard. A geological assessment must detail the surface and subsurface conditions of a site and delineate the areas of a property that might be subject to specified geologic hazards.

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

"Geologist" means engineering geologist, or hydrogeologist, registered in the state of Washington.

"Geotechnical professional" means a person with experience and training in analyzing, evaluating, and mitigating landslide, erosion, and/or seismic hazards. A geotechnical professional shall be licensed in the state of Washington as a geologist or professional engineer, and must have five or more years experience specializing in landslide, erosion, or seismic hazards, as applicable.

"Geotechnical report" means a report prepared by a professional engineer licensed by the state of Washington with expertise in geotechnical engineering, evaluating the site conditions and mitigating measures necessary to reduce the risks associated with development in geologically hazardous areas.

"Grading" means any excavating, filling, clearing, or creating of impervious surfaces or combination thereof.

"Ground amplification" means an increase in the intensity of earthquake-induced ground shaking which occurs at a site whereby thick deposits of unconsolidated soil or surficial geologic materials are present.

"Groundwater" means all water found beneath the ground surface, including slowly moving subsurface water present in aquifers and recharge areas.

"Group A water system" means a water system:

1. With 15 or more service connections; or
2. A system that services an average of 25 or more people per day for 60 or more days within a calendar year.

"Habitat assessment" means a report prepared by a professional wildlife biologist or fisheries biologist, which identifies the presence of fish and wildlife habitat conservation areas near the proposed development site.

"Habitat evaluation" means a procedure for determining the abundance and quality of habitat features for a species or other taxonomic group (in this case, salmonid fishes) at or on a particular site or property.

"Habitat evaluation report package" means the combined materials that compose a report on a habitat evaluation (see definition in this section), including narrative on methods and findings, as well as maps and data in tabular and graphic form.

"Habitat management plan" means a report prepared by a professional wildlife biologist or fisheries biologist, which discusses and evaluates the measures necessary to maintain fish and wildlife habitat conservation areas on a proposed development site.

“Habitat of local importance” means an area, range, or habitat within which a species has a primary association and which, if altered, may reduce the likelihood that the species will maintain and reproduce over the long term. Examples include areas of high relative density or species richness, breeding habitat, winter range, and movement corridors. These areas may also include habitats that are of limited availability or high vulnerability to alteration.

“Hard armoring” means the use of large rock and/or human-made materials to protect property from shoreline erosion. Such techniques include cement/concrete bulkheads, steel structures, rock wall revetments, and rock gabion structures. Hard armoring typically does not utilize or integrate any of soft armoring or soil bioengineering techniques.

“Hazardous substance(s)” means any liquid, solid, gas, or sludge, including any materials, substance, product, commodity, or waste, regardless of quantity, that exhibits any of the characteristics or criteria of hazardous waste; and including waste oil and petroleum products.

“Hazardous substance processing or handling” means the use, storage, manufacture, or other land use activity involving hazardous substances, but does not include individually packaged household consumer products or quantities of hazardous substances of less than five gallons in volume per container. Hazardous substances shall not be disposed on-site unless in compliance with Dangerous Waste Regulations, Chapter 173-303 WAC, and any pertinent local ordinances such as sewer discharge standards.

“Hazardous waste” means and includes all dangerous waste and extremely hazardous waste as designated pursuant to Chapter 70.105 RCW and Chapter 173-303 WAC.

1. “Dangerous waste” means any discarded, useless, unwanted, or abandoned substances including but not limited to certain pesticides or any residues or containers of such substances which are disposed of in such quantity or concentrations as to pose a substantial present or potential hazard to human health, wildlife, or the environment because such wastes or constituents or combinations of such wastes:
 - a. Have short-lived, toxic properties that may cause death, injury, or illness, or have mutagenic, teratogenic, or carcinogenic properties; or
 - b. Are corrosive, explosive, flammable, or may generate pressure through decomposition or other means.
2. “Extremely hazardous waste” means any waste which:
 - a. Will persist in a hazardous form for several years or more at a disposal site and which in its persistent form presents a significant environmental hazard and may be concentrated by living organisms through a food chain or may affect the genetic make-up of humans or wildlife; and
 - b. Is disposed of at a disposal site in such quantities as would present an extreme hazard to humans or the environment.

“Hazardous waste treatment and storage facility” means a facility that treats and stores hazardous waste and is authorized pursuant to Chapter 70.105 RCW and Chapter 173-303 WAC. It includes all contiguous land and structures used for recycling, reusing, reclaiming, transferring, storing, treating, or disposing of hazardous waste. Treatment includes using physical, chemical, or biological processing of hazardous wastes to make such waste nondangerous or less dangerous and safer for transport, amenable for energy or material resource recovery. Storage includes the holding of waste for a temporary period, but not the accumulation of waste on the site of generation as long as the storage complies with applicable requirements of Chapter 173-303 WAC.

~~1. “On-site treatment and storage facility” means a facility that treats or stores hazardous wastes generated on the same geographically contiguous property.~~

~~2. “Off-site treatment and storage facility” means a facility that treats or stores hazardous wastes generated on property other than those on which the off-site facility is located.~~

~~Hearing Examiner or Examiner. See EMC 18.20.110, “H” definitions.~~

“Holocene ~~E~~epoch” means that part of the geologic record that post-dates the youngest deposits associated with the late Pleistocene Age Fraser Glaciation ~~and is typically considered to be the past 10,000 years.~~

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“Hydrogeologic assessment” means a report detailing the subsurface conditions, the design of a proposed land use action, and the facilities operation which indicates the susceptibility and potential for contamination of groundwater supplies.

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~~“Hydrologically connected” means a connection between two or more surface water bodies including, but not limited to, wetlands, streams or lakes as evidenced by:~~

- ~~1. The presence of surface water in a perennial or intermittent stream, through a culvert or otherwise above-ground;~~
- ~~2. The presence of contiguous hydric soil; or~~
- ~~3. The location of a water body within or contiguous to a 100-year floodplain of a wetland, stream or lake.~~

~~“Hydrologically isolated wetland” means a wetland which:~~

- ~~1. Is not contiguous to any 100-year floodplain of a lake, river, or stream; and~~
- ~~2. Has no contiguous surface hydrology, hydric soil, or hydrophytic vegetation between the wetland and any other wetland or stream system.~~

“Impervious surface” means a hard surface, which prevents or retards the entry of water into the soil mantle as under natural conditions prior to development, and/or a hard surface area, which causes water to run off the surface in greater quantities or at an increased rate of flow than the flow present under natural conditions prior to development. Common impervious surfaces include, but are not limited to, roof tops, walkways, patios, driveways, parking lots or storage areas, concrete or asphalt paving, gravel roads, gravel parking lots, packed earthen materials, and oiled, macadam or other surfaces which similarly impede the natural infiltration of stormwater. Open, uncovered retention/detention facilities shall not be considered as impervious surfaces.

~~“In-kind mitigation” means to replace wetlands with substitute wetlands whose characteristics and functions and values are intended to replicate those destroyed or degraded by a regulated activity.~~

“Increased cost of compliance (ICC)” means a flood insurance claim payment up to \$30,000 directly to a property owner for the cost to comply with floodplain management regulations after a direct physical loss caused by a flood. Eligibility for an ICC claim can be through a single instance of “substantial damage” or as a result of a “cumulative substantial damage.” (More information can be found in FEMA ICC Manual 301.)

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~~“Interspersion between wetland classes” means the degree to which different wetland classes are scattered among each other.~~

“Lahar” means a mudflow or debris flow mobilized by water, which originates on the slopes of a volcano.

“Lakes” means impoundments of open water 20 acres or larger.

~~Landfill. See EMC 18.20.150, “L” definitions: “Landfill” means a place to dispose of refuse and other waste material by burying it and covering it over with soil.~~

“Landslide” means the abrupt downslope movement of soil, rocks, or other surface matter on a site. Landslides may include but are not limited to slumps, debris flows, mudflows, earthflows, rockfalls, and snow avalanches.

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

“Large animal” means an animal with an average weight of 100 pounds or more.

“License” means any form of written permission given to any person, organization, or agency to engage in any activity, as required by law or agency rule. A license includes all or part of a city permit, certificate, approval, registration, charter, or plat approvals or rezones to facilitate a particular proposal. The term does not include a license required solely for revenue purposes.

“LiDAR” means Light Detection and Ranging imaging.

“Liquefaction” means a process by which a water-saturated granular (sandy) soil layer loses strength because of ground shaking ~~commonly~~ caused by an earthquake.

“Long-term commercial significance” means the growing capacity, productivity, and soil composition of land, which makes it suitable for long-term commercial production, in consideration with the land’s proximity to population areas, and the possibility of more intense uses of land.

“Lowest floor” means the lowest floor of the lowest enclosed area (including basement and crawl space). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access, or storage in an area other than a basement area, is not considered a building’s lowest floor; provided, that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of this title.

“Maintenance” means those usual acts to prevent a decline, lapse, or cessation from a lawfully established condition without any expansion of or significant change from that originally established condition. For the purposes of this document, activities within landscaped areas within areas subject to native vegetation retention requirements may be considered maintenance only if they maintain or enhance the canopy and understory cover.

“Manufactured home/mobile home” means a structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. For floodplain management purposes, the term “manufactured home/mobile home” also includes park trailers, travel trailers, and other similar recreational vehicles placed on a site for greater than 180 consecutive days. For insurance purposes, the term “manufactured home/mobile home” does not include park trailers, travel trailers, recreational vehicles, or other similar vehicles.

“Manufactured home park or subdivision” means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

“Mineral resource lands” means lands primarily devoted to the extraction of minerals or which have known or potential long-term commercial significance for the extraction of minerals.

“Minerals” include gravel, sand, or other resources that are extracted from the ground, and valuable metallic substances.

“Mitigation” means:

1. Avoiding the impact altogether by not taking a certain action or parts of an action;
2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps to avoid or reduce impacts;
3. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
4. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action;
5. Compensating for the impact by replacing, enhancing, or providing substitute resources or environments;
and
6. Monitoring the impact and taking appropriate corrective measures; and

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~~7. Measures used in sequential order to eliminate, reduce, or compensate for adverse impacts to habitat resulting from a development proposal or alteration.~~

“Mudflow” means a debris flow containing an abundance of fine particles.

“Native vegetation” or “native plants” means a mix of plant species comprising herbs, grasses, grass-like plants, shrubs and trees indigenous to the Puget Sound region that reasonably could be expected to naturally occur on the site.

“Natural resource lands” means agricultural and mineral resource lands, which have long-term commercial significance.

“New construction” means structures for which the “start of construction” commenced on or after the following:

1. For the purposes of determining flood insurance rates, the effective date of an initial FIRM (i.e., August 19, 1987, or August 4, 1988, for Panel 350 only), and includes any subsequent improvements to such structures.
2. For floodplain management purposes, the effective date of this floodplain management ordinance and includes any subsequent improvements to such structures.
3. For all other cases, the effective date of the applicable critical areas ordinance.

“New manufactured home park or subdivision” means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after the effective date of the adopted floodplain management regulations.

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~~“Oak woodlands” means those areas where Oregon white oak comprises more than 20 percent of the trees in a stand, and where the stand size is one acre or greater; provided, that stand size may be smaller where white oak serves as linkages between larger stands. Trees should be greater than 15 inches in diameter at breast height and greater than 16 feet tall.~~

~~“Old growth forests” means a stand of trees generally containing mature and overmature trees in the overstory, a multi-layered canopy and trees of several age classes, and standing dead trees and down material.~~

“Ordinance” means the ordinance, resolution, or other procedure used by the city to adopt regulatory requirements.

“Ordinary high water mark (OHWM)” means the mark on all lakes, streams and tidal waters that will be found by examining the beds and banks and ascertaining where the presence and action of waters are so common and usual, and so long continued in all ordinary years, as to mark upon the soil a character distinct from that of the abutting upland and vegetation, as that condition exists on the effective date of the ordinance codified in this title, or as it may naturally change thereafter. In any area where the ordinary high water mark cannot be found, the ordinary high water mark shall be the line of mean higher high tide in areas adjoining saltwater, and the line of mean high water in areas adjoining freshwater.

~~“Out of kind mitigation” means to replace wetlands with substitute wetlands whose characteristics do not approximate those destroyed or degraded by a regulated activity.~~

~~“Parties of record” are those persons with legal standing with respect to an application including the applicant, property owner as identified by the records available from the Pierce County assessor’s office, or any person who testified at the open record public hearing on the application; and/or any person who submitted written comments during administrative review or has submitted written comments concerning the application at the open record public hearing, excluding persons who have only signed petitions or mechanically produced form letters.~~

~~“Permanent erosion control” means continuous on-site and off-site control measures that are needed to control conveyance and/or deposition of earth, turbidity, or pollutants after development, construction, or restoration.~~

~~Person. See EMC 18.20.190, “P” definitions.~~

The Edgewood Municipal Code is current through Ordinance 17-498, passed April 11, 2017.

“Plat” means:

1. “Short subdivision” or “short plat” means the division or redivision of land into six or fewer lots, tracts, parcels, sites, or divisions for the purpose of sale, lease, or transfer of ownership.
2. “Subdivision” or “formal subdivision” means the division or redivision of land into seven or more lots, tracts, parcels, sites, or division for the purpose of sale, lease, or transfer of ownership. For floodplain management regulation purposes, this includes land over five acres in area situated within a flood hazard area.

“Ponds” means naturally occurring impoundments of open water less than 20 acres in size and larger than 2,500 square feet, which maintain standing water throughout the year. Also see “depressional pothole.”

~~“Private organization” means a nonprofit corporation organized pursuant to Chapter 24.03 RCW, which includes the planting of game fish among its purposes for organizing as a nonprofit corporation.~~

“Professional engineer” means an engineer currently licensed and registered in the state of Washington.

~~“Project permit” means any land use or environmental permit or license required from the city for a project action, including but not limited to building permits, site development permits, land use preparation permits, subdivisions, binding site plans, planned unit developments, conditional uses, shoreline substantial development permits, development plan review, site specific rezones authorized by the comprehensive plan; but excluding adoption or amendment of the comprehensive plan and development regulations, zoning of newly annexed land, area wide rezones, and zoning map amendments except as otherwise specifically included in this subsection.~~

~~“Public services” means fire protection and suppression, law enforcement, public health, education, recreation, environmental protection, and other governmental services.~~

~~“Recessional outwash geologic unit” means sand and gravel materials deposited by melt water streams from receding glaciers.~~

“Reconstruction” means the rebuilding of an existing structure which has been partially or completely destroyed by any cause, such as but not limited to fire, wind, landslides, and water, without increasing the original floor area or square footage area.

“Recreational vehicle (RV)” means a vehicle built on a single chassis, 400 square feet or less when measured at the largest horizontal projection, designed to be self-propelled or permanently towable by a light duty truck, and designed primarily not for use as a permanent dwelling but as a temporary living quarters for recreational, camping, travel, or seasonal use.

~~“Rectification” means an action which repairs an alteration to habitat and its functions.~~

~~“Regolith” means any body of loose, noncemented particles overlying and usually covering the bedrock.~~

“Regulated activities” means, but is not limited to, any of the following activities which are directly undertaken or originate in a regulated critical area or its buffer: building permit, commercial or residential; binding site plan; franchise right-of-way construction permit; site development permit; right-of-way permit; shoreline permits; short subdivision; use permits; subdivision; utility permits; or any subsequently adopted permit or required approval not expressly exempted by this title.

“Rehabilitation” means any improvements and repairs which are made to the interior and exterior of an existing structure, but which do not result in any increase in the floor area of the structure. This is also commonly referred to as a “remodel” of an existing structure.

“Restoration” means an action which returns habitat to a state in which its stability and functions approach its unaltered state as closely as possible. This may be accomplished through measures including, but not limited to, re-vegetation, removal of intrusive stream bank structures, and removal or treatment of toxic materials. Restoration does not imply a requirement for returning the critical area to aboriginal or pre-European settlement conditions.

“Revised Code of Washington (RCW)” means all laws of a general and permanent nature heretofore or hereafter enacted by the legislature, and assign permanent numbers as provided by law to all new titles, chapters, and sections thereof.

“Riparian” means the area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. Riparian habitat begins at the ordinary high water mark and includes the entire extent of the floodplain and riparian areas of wetlands that are directly connected to the stream course.

“Seismic hazard areas” means areas subject to severe risk of damage as a result of earthquake-induced ground shaking, slope failure, settlement, or soil liquefaction.

“Sensitive areas” mean agricultural lands and mineral resource lands and all associated buffers.

“Shoreline” for this title means the line where a body of water and the shore meet or the strip of land along the shoreline. There are no waters within the city of Edgewood meeting the criteria of shorelines of statewide significance as defined by RCW 90.58.030.

“Single-family dwelling” means a detached building designed exclusively for occupancy by one family and containing one dwelling unit.

“Site” means a lot, parcel, tract, or combination of lots, parcels, or tracts on which a regulated activity is proposed.

“Slope” means an inclined earth surface, the inclination of which is expressed as the ratio of horizontal distance to vertical distance.

“Sludge” means a semisolid substance consisting of settled solids combined with varying amounts of water and dissolved materials generated from a wastewater treatment plant or system or other sources, including septage sludge, sewage sludge, and industrial sludge.

“Sludge land application site” means a site where stabilized sludge, septage, and other organic wastes are applied to the surface of the land in accordance with established agronomic rates for fertilization or soil conditioning.

“Slump” means the downward and outward movement of a mass of bedrock, colluvium, or ~~regolith~~ other sediments along a distinct surface of failure.

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“Small animal” means an animal with an average weight of less than 100 pounds.

~~“Snag-rich areas” means forested areas which contain concentrations of standing dead trees, averaging 10 snags or greater per acre, and averaging greater than 15 inches in diameter at breast height.~~

“Special occupancy structures” means those structures that have the potential to provide capacity for large numbers of people or special groups of people or assemblies such as but not limited to schools, jails and detention facilities, and resident incapacitated patients.

“Species of local importance” means species that are of local concern due to their population status or their sensitivity to habitat manipulation.

“Soft armoring techniques” means the use of woody plants and limited structural-mechanical systems that are integrated in a structurally and environmentally sound manner to repair and protect slopes and shorelines against shallow mass wasting and surface erosion. Measures such as live stake, live fascine, brushlayer, live cribwall, vegetated geogrid, branchpacking, live slope grading, beach berms, or earthen berms are examples of soft armoring techniques. Soft armoring techniques may also be referred to as soil bioengineering methods.

“Start of construction” includes substantial improvement, and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, placement or other improvement was within 180 days of the permit date. The “actual start” means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage

of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the "actual start of construction" means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

~~"State Environmental Policy Act (SEPA)" means RCW 43.21C.010, to declare a state policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere; stimulate the health and welfare of man; and to enrich the understanding of the ecological systems and natural resources important to the state and nation.~~

~~"State Environmental Policy Act (SEPA) Rules" means Chapter 197-11 WAC adopted by Washington State Department of Ecology as now, or hereafter, amended.~~

"Stockpiling" means the placement of material with the intent to remove it later.

"Structure" means a walled and roofed building, including a gas or liquid storage tank that is principally above ground.

~~"Subbasin" means a drainage area which drains to marine water, lakes or the mainstem of a watershed water resource inventory area.~~

~~"Subclass" means one of the subclasses identified in the United States Fish and Wildlife Service (USFWS) December 1979 publication, Classification of Wetlands and Deep Water Habitats of the United States.~~

"Substantial damage" means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

"Substantial improvement" means any repair, reconstruction, addition, rehabilitation, or other improvement of a structure, whereby the cost for the work exceeds 50 percent of the market value of the existing structure before the "start of construction" of the improvement. This term includes structures which have incurred "substantial damage," regardless of the actual repair work performed.

The term does not, however, include either:

1. Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions; or
2. Any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places; provided, that the alteration will not preclude the structure's continued designation as a "historic structure."

Except for floodplain management regulation, the "cost" and "market value" may be determined using the current permit valuation. The building official shall determine the current permit valuation based on the cost per square foot values in effect at the time of permit application. Substantial improvement shall be accumulative from the effective date of the ordinance codified in this chapter.

~~"Substrate" means the soil, sediment, decomposing organic matter, or combination of those located on the bottom surface of a wetland.~~

"Talus" means a homogenous area of rock rubble ranging in average size 0.15 to 2.0 meters (0.5 to 6.5 feet) ~~composed of basalt, andesite, and/or sedimentary rock~~, including riprap slides and mine tailings. Talus areas may be associated with cliffs.

~~“Temporary erosion control” means on-site and off-site control measures that are needed to control conveyance or deposition of earth, turbidity, or pollutants during development, construction, or restoration.~~

~~“Ten-year time travel zone boundary” means the maximum distance around a pumping well from which a contaminant hypothetically present in groundwater could travel to the well within a 10-year time period.~~

“Toe of slope” means a distinct topographic break in slope at the lowermost limit of the landslide or erosion hazard area.

~~“Top of slope” means a distinct topographic break in slope at the uppermost limit of the landslide or erosion hazard area.~~

“TPCHD” means the Tacoma-Pierce County Health Department.

“Underground storage tank” means any one or a combination of tanks (including underground pipes connected thereto) which are used to contain or dispense an accumulation of hazardous substances or hazardous wastes, and the volume of which (including the volume of underground pipes connected thereto) is 10 percent or more beneath the surface of the ground.

“Urban governmental services” means those governmental services historically and typically delivered by cities, and includes storm and sanitary sewer systems, domestic water systems, street cleaning services, and other public utilities associated with urban areas and normally not associated with nonurban areas.

“Urban growth” means growth that makes intensive use of the land for the location of buildings, structures, and impermeable surfaces to such a degree as to be incompatible with the primary use of such land for the production of food, other agricultural products, or fiber, or the extraction of mineral resources. When allowed to spread over wide areas, urban growth typically requires urban governmental services. ~~“Characterized by urban growth”²² refers to land having urban growth located on it or to land located in relationship to an area with urban growth on it as to be appropriate for urban growth.~~

“Utility line” means pipe, conduit, cable, or other similar facility by which services are conveyed to the public or individual recipients. Such services shall include, but are not limited to, water supply, electric power, gas, communications, and sanitary sewers.

“Variance” means a grant of relief from the requirements of this chapter that permits construction in a manner that would otherwise be prohibited by this chapter, per EMC 14.10.085.

“View corridor” means an area, which affords views of lakes, mountains, or other scenic amenities normally enjoyed by residential property owners.

“Violation” means the failure of a structure or other development activity to be fully compliant with the provisions of this title. With regard to the floodplain management regulations, projects without the elevation certificate, other certifications, or other evidence of compliance required in Chapter 14.70 EMC are presumed to be in violation until such time as that documentation is provided. See Chapter 1.10 EMC for penalties.

“Volcanic hazard areas” means those areas subject to pyroclastic flows, lava flows, and inundation by debris flows, mudflows, or related flooding resulting from geologic or volcanic events on Mount Rainier.

“Washington Administrative Code (WAC)” means state of Washington Administrative Code.

“Water dependent” means a structure for commerce or industry that cannot exist in any other location and is dependent on the water by reason of the intrinsic nature of its operations.

“Wellhead protection area” means the area within the 10-year time-of-travel zone boundary of a group A public water system well, as delineated by the water system purveyor or its designee, pursuant to WAC 246-290-135.

“Wetland” means areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for

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life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from nonwetland sites, including, but not limited to, irrigation and 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 nonwetland areas created to mitigate conversion of wetlands.

“Wetland mosaic” means a patchwork of wetlands that is considered one unit where each patch of wetland is less than one acre and the areas delineated as vegetated wetland are more than fifty percent of the total area of the wetlands and uplands together means any area which is inundated or saturated by ground or surface water at a frequency and duration sufficient to support, and under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions. For the purpose of this definition:

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1. Where the vegetation has been removed or substantially altered, the presence of a wetland is determined by the presence or evidence of hydric soil, by other documentation such as aerial photographs of the previous existence of wetland vegetation or by any other manner authorized in the “Washington State Wetlands Identification and Delineation Manual,” 1997, Department of Ecology;

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2. A wetland may occur along the shoreline of tidal water, a lake, a stream or in a depression in the landscape. For any wetland occurring along a shoreline, the wetland's waterward boundary is where the water's depth exceeds six and six-tenths feet below low water or, if low water cannot be determined, six and six-tenths feet below the outlet's invert elevation;

3. Except for artificial features intentionally made for the purpose of mitigation, a wetland does not include an artificial feature made from a nonwetland area which may include, but is not limited to, a surface water conveyance for drainage or irrigation, a grass-lined swale, a canal, a flow control facility, a wastewater treatment facility, a farm pond, a wetpond, landscape amenities or a wetland made after July 1, 1990, which was unintentionally made as a result of the construction of a road, street, or highway; and

4. Wetlands shall include those wetlands intentionally created from nonwetland areas, formed to mitigate conversion of wetlands.

“Wetland, isolated” means a wetland, which is not hydrologically connected, does not have permanent open water and is often of low function.

“Wetland specialist” means a person with experience and training in wetlands issues and with experience in performing a wetland delineation, analyzing wetland functions and values, analyzing wetland impacts, and recommending wetland mitigation and restoration means a wetland scientist with at least two years of full-time work experience as a wetlands professional, including delineating wetlands using the federal manual and supplements, preparing wetland reports, conducting function assessment, and development and implementing mitigation plans.

Qualifications include:

1. Bachelor of Science or Bachelor of Arts or equivalent degree in biology, botany, environmental studies, fisheries, soil science, wildlife, agriculture, or related field, and two years of related work experience, including a minimum of one year experience delineating wetlands using the Unified Federal Manual and preparing wetland reports and mitigation plans. Additional education may substitute for one year of related work experience; or
2. Four years of related work experience and training, with a minimum of two years experience delineating wetlands using the Unified Federal Manual and preparing wetland reports and mitigation plans. The person should be familiar with the Federal Manual for Identifying and Delineating Jurisdictional Wetlands, Corps of Engineers Wetlands Delineation Manual 1987 edition and corresponding guidance letters, Washington State Wetlands Identification and Delineation Manual, the city site development regulations, and the requirements of this title.

“Wildlife biologist” means a professional with a degree in wildlife, or certification by the Wildlife Society, or with five years’ professional experience as a wildlife biologist. (Ord. 17-492 § 2 (Exh. A); Ord. 16-461 § 2; Ord. 15-447 § 1 (Exh. A); Ord. 02-200 § 2).

14.10.070 Administration.

A. Approvals Required. An approval must be obtained from the city when the department determines that the site or project area is or may be located within 300 feet of a critical area, as set forth in each chapter.

B. Application Requirements.

1. Preliminary Review. The provisions for conducting a preliminary review of an application is set forth in EMC 18.40.070, Process types.

2. Application Filing.

a. Applications shall be reviewed for completeness in accordance with department submittal standards checklists and pursuant to EMC 18.40.150, Determination of completeness.

b. Applications and associated reports shall not be submitted without an accompanying permit application for an underlying action (parent application) such as, but not limited to, a building permit, subdivision or boundary alteration action, site development application, TPCHD permit, or use permit, with the exception of applications required by the department as a result of an enforcement action or reports required by TPCHD for septic design approval.

3. Modifications. The department may request an update of any required assessment, report, delineation, etc., due to the potential for change in the existing environment that may have been caused by a natural event (e.g., seismic event, landslides, flooding, etc.) or human induced activity that degraded the existing conditions that occurred after the original document was initially submitted.

C. Public Notice. Public notice provisions for notice of application; public hearing, if applicable; and final decision pursuant to this title are outlined in EMC 18.40.190, Notice of public hearing.

D. Review.

1. Initial Review. The department shall conduct an initial review of any application in accordance with the provisions outlined in EMC 18.40.150, Determination of completeness.

2. Review Responsibilities.

a. The department is responsible for administration, circulation, and review of any applications and approvals required by this title.

b. The hearing examiner shall be the decision authority for reasonable use applications.

c. Other city or county departments and state agencies, as determined by the department, may review an application and forward their respective recommendations to the director or hearing examiner, as appropriate.

3. Review Process.

a. The department shall perform a critical area review for any building or land use application submitted for a regulated activity, including, but not limited to, those set forth in EMC 14.20.020. Reviews for multiple critical areas shall occur concurrently.

b. The department shall, to the extent reasonable, consolidate the processing of related aspects of other Edgewood city regulatory programs which affect activities in regulated critical areas, such as subdivision or site development, with the approval process established herein so as to provide a timely and coordinated review process.

The Edgewood Municipal Code is current through Ordinance 17-498, passed April 11, 2017.

c. As part of the initial review of all development or building-related approvals or permit applications, the department shall review the information submitted by the applicant to:

- i. Confirm the nature and type of the critical area and evaluate any required assessments, reports, or studies;
- ii. Determine whether the development proposal is consistent with this title;
- iii. Determine whether any proposed alterations to the site containing critical areas are necessary; and
- iv. Determine if the mitigation and monitoring plans proposed by the applicant are sufficient to protect the public health, safety, and welfare consistent with the goals, purposes, objectives, and requirements of this title.

~~d. Regulated activities subject to SEPA shall also be reviewed with consideration for impacts on critical areas as identified in this title. Regulated activities that pose a significant adverse impact which are not addressed by the standards and criteria established in this title (gaps), may be subject to additional mitigation measures as determined through the SEPA process. A threshold determination issued pursuant to EMC Title 20, SEPA, may not be made prior to departmental review of any special studies or technical reports required by this title, except where the applicant requests a declaration of significance so that environmental review is required.~~

ed. Critical area applications required under this title shall be approved prior to approval of any related action (parent application) such as, but not limited to, a building permit, subdivision action, site development action, forest practice application, or use permit.

ef. The requirement to submit a critical area assessment, report, etc., required under this title, may be waived at the department's discretion when the proposed project area for a regulated activity is located in an area that has been the subject of a previously submitted and approved assessment, report, etc., if all of the following conditions have been met:

- i. The provisions of this title have been previously addressed as part of another approval;~~;~~
- ii. There has been no material change in the potential impact to the critical area or required buffer since the prior review;~~;~~
- iii. There is no new information available that is applicable to any critical review of the site or particular critical area;~~;~~
- iv. The permit or approval has not expired or, if there is no expiration date, no more than five years have elapsed since the issuance of that permit or approval; and;
- v. Compliance with any standards or conditions placed upon the prior permit or approval has been achieved or secured.

4. Burden of Proof. The applicant has the burden of proving that a proposed application complies with the standards set forth in this title.

5. Approval.

a. The department may approve, approve with conditions, or deny any development proposal in order to comply with the requirements and carry out the goals, purposes, objectives, and requirements of this title based on the department's or hearing examiner's, as applicable, evaluation of the ability of any proposed mitigation measures to reduce risks associated with the critical area and compliance with required standards. Approval of a development proposal does not discharge the obligation of the applicant to comply with the provisions of this title.

b. Applicants shall comply with the recommendations and/or mitigation measures contained in final approved assessments or reports and any department or hearing examiner conditions of approval.

c. Approval of an application required under this title must be given prior to the start of any development activity on a site.

6. Denial. The department or hearing examiner, as applicable, shall have the authority to deny any application for development or building-related approvals or permits when the criteria established in this title have not been met.

7. Time Period for Final Decision. The provisions for issuing a notice of final decision on any application filed pursuant to this title is set forth in EMC 18.40.040, Coordination of development permit procedures.

E. Time Limitations.

1. Expiration of Approval.

a. Approvals granted under this title shall be valid for the same time period as the underlying permit (e.g., preliminary plat, site development, building permit). If the underlying permit does not contain a specified expiration date then approvals granted under this title shall be valid for a period of three years from the date of issue, unless a longer or shorter period is specified by the department.

b. The approval shall be considered null and void upon expiration, unless a time extension is requested and granted as set forth in subsection (E)(2) of this section.

2. Time Extensions.

a. The applicant or owner(s) may request in writing a one-time, one-year extension of the original approval.

b. Knowledge of the expiration date and initiation of a request for a time extension is the responsibility of the applicant or owner(s).

c. A written request for a time extension shall be filed with the department at least 60 days prior to the expiration of the approval.

d. Upon filing of a written request for a time extension, a copy shall be sent to each party of record together with governmental departments or agencies that were involved in the original approval process. By letter, the department shall request written comments be delivered to the department within 30 days of the date of the letter.

e. Prior to the granting of a time extension, the department may require a new application(s), updated study(ies), and fee(s) if:

i. The original intent of the approval is altered or enlarged by the renewal;

ii. The circumstances relevant to the review and issuance of the original approval have changed substantially; or

iii. The applicant failed to abide by the terms of the original approval.

f. If approved, the one-year time extension shall be calculated from the date of granting said approval.

F. Recording.

1. Approvals.

a. Critical area regulation approvals are to be recorded on the title of the project parcel(s) at the Pierce County auditor's office within six months of issuance. Failure to record an approval in this timeframe may result in the project being placed into inactive status. A new application(s) and fee(s) may be required to

remove the project from inactive status. Also refer to EMC 14.10.080(C), Title and Land Division Notification, for additional recording requirements.

b. Recording of a wetland approval for work completed within utility line easements on lands not owned by the jurisdiction conducting the regulated activity shall be required.

2. Right of Entry Agreement. The city may require the applicant to record a right of entry agreement, which shall be consistent with a format approved by the department. The right of entry agreement shall:

a. Allow ~~director or agent~~ the department and agents of the department to access the site for purposes of inspection during the course of application review, construction, and post-construction monitoring.

b. Allow the department and agents of the department ~~director or agent~~ to enter a property to construct required improvements, mitigation measures, or monitoring that have been financially guaranteed.

c. Run with the land, and be binding on all parties having or acquiring any right, title, interest, or any part thereof of the site, including the grantor, heirs, successors, and assigns. (Ord. 02-200 § 2).

14.10.075 Relationship to Other Regulations

A. This title shall apply as an overlay and in addition to zoning and other regulations adopted by the City.

B. These critical areas regulations shall apply concurrently with review conducted under SEPA, as adopted under Chapter EMC 20.05.

C. Compliance with the provisions of this title does not constitute compliance with other federal, state, and local regulations and permit requirements that may be required (for example, Hydraulic Permit Act [HPA] permits, Section 106 of the National Historic Preservation Act, U.S. Army Corps of Engineers Section 404 permits, National Pollution Discharge Elimination System permits). The applicant is responsible for complying with these requirements, apart from the process established in this title.

14.10.080 Critical area protective measures.

A. General. All critical area tracts, conservation easements, land trust dedications, and other similarly preserved areas shall remain undeveloped in perpetuity, except as they may be allowed to be altered pursuant to each chapter.

B. Financial Guarantees.

1. The city may require an applicant to submit one or more financial guarantees to the city, as set forth in each chapter of this title (and other titles of Edgewood's Municipal Code as required), to guarantee any performance, mitigation, maintenance, or monitoring required as a condition of permit approval. The approval for the project will not be granted until the financial guarantee is received by the department. Projects where the city or one of its departments is the applicant shall not be required to post a financial guarantee.

2. Financial guarantees required under this title shall be:

a. In addition to any other site development guarantees required for project approval;

b. Submitted on financial guarantee forms approved by the city;

c. In the amount of 125 percent of the estimate of the cost of mitigation or monitoring to allow for inflation and administration should the city have to complete the mitigation or monitoring, unless the provisions set forth in subsection (B)(2)(D) of this section are applicable; ~~and~~.

d. Released by the city only when the applicant's appropriate technical professional has provided written confirmation that the performance, mitigation, or monitoring requirements have been met and department staff, or agent, inspected the site(s) for compliance.

3. Failure to complete any performance, mitigation, or monitoring may result in the forfeiture of the guarantee. Applicants who have previously defaulted will no longer be allowed to post a guarantee for improvements

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necessary for approval of a land use application. Applicants who have previously defaulted will be allowed to post guarantees for subsequent critical area mitigation work needed for approval of a land use application or permit, but the guarantee must be by bond and must be for two times the required amount.

C. Title and Land Division Notification.

1. General.

- a. Title and/or land division notice shall be required to be recorded with the Pierce County auditor on each site that contains a critical area, prior to approval of any regulated activity on a site.
- b. If more than one critical area subject to the provisions of this title exists on the site, then one notice which addresses all of the critical areas shall be sufficient.
- c. Title and land division notifications and notes shall be approved by the department and shall be consistent with ~~Appendix B in~~ EMC 14.10.140, Appendix A.

2. Title Notification.

- a. When the city determines that activities not exempt from this title are proposed, the property owner shall file a notice with the Pierce County auditor. The notice shall provide a public record of the presence of a critical area and associated buffer, if applicable; the application of this title to the property; and that limitations on actions in or affecting such critical area and associated buffer, if applicable, may exist.
- b. The notice shall be notarized and shall be recorded with the Pierce County auditor prior to approval of any regulated use or activity for the site.
- c. Notice on title is not required for utility line easements on lands not owned by the jurisdiction conducting the regulated activity (e.g., gas pipelines).

3. Land Division Notification and Notes. The applicant shall include notes, as referenced in EMC 14.10.140, Appendix ~~AB~~, on the face of any proposed activity as defined in EMC Title 16, Subdivisions (i.e., final plat, binding site plan, large lot, short subdivision, boundary line adjustment, or lot combination), for projects that contain critical areas or critical area buffers. The applicant shall also clearly identify the critical area boundaries and the boundary of any associated buffers on the face of these documents.

D. Conservation Easements. Prior to any final critical area approval, the part of the critical area and required buffer which is located on the site shall be protected with a conservation easement or other similar permanent deed restriction. The conservation easement shall indicate allowable and prohibited uses within the critical area and required buffer.

E. Tracts. Prior to final approval of any subdivisions, short subdivisions, large lot divisions, or binding site plans, the part of the critical area and required buffer which is located on the site, shall be placed in a separate tract or tracts ~~(see Figure 14.10.2 in EMC 14.10.150)~~. In lieu of a separate tract, an applicant may propose to establish an alternative permanent protective mechanism; however, approval of such is based upon the department's or hearing examiner's, as applicable, determination that such alternative mechanism provides the same level of permanent protection as designation of a separate tract or tracts.

F. Homeowner's Covenants. A description of the critical area and required buffer shall be placed in any required homeowner's covenants. Such covenants shall contain a detailed description of the allowable uses within the critical area and, if applicable, associated buffer and long-term management and maintenance requirements of that critical area.

G. Identification of Critical Areas and Required Buffers on Construction Plans. Critical areas and required buffers shall be clearly identified on all construction plans such as, but not limited to, site development plans, residential building plans, commercial building plans, forest harvest plans, etc.

H. Markers, Fencing, and Signage.

The Edgewood Municipal Code is current through Ordinance 17-498, passed April 11, 2017.

1. Markers. Prior to final approval of any critical area application, the outer edge of the critical area boundaries or, if applicable, required buffer boundaries on the site shall be flagged by the qualified professional, as outlined in each chapter. These boundaries shall then be identified with permanent markers (rebar and cap) and flagged by a licensed surveyor, unless otherwise stated in this title. The permanent markers shall be clearly visible, durable, and permanently affixed to the ground.

2. Fencing.

a. Temporary Construction Fencing. Temporary fencing is required when vegetation is to be retained in an undisturbed condition within the critical area and required buffer. In such cases, the applicant will be required to construct silt fencing, construction fencing, or other city-approved method of temporary fencing at the edge of the critical area or, if applicable, the edge of the required buffer prior to beginning construction on the site.

b. Permanent Fencing. Where deemed necessary by the department to provide protection to the critical area, the applicant will be required to construct permanent, wildlife-passable fencing along the buffer boundary.

3. Signage.

a. The department shall require permanent signage to be installed at the edge of the critical area or, if applicable, the edge of the required buffer.

b. The sign shall indicate the type of critical area and if the area is to remain in a natural condition as permanent open space.

c. Exact sign locations, wording, size, and design specifications shall be established by the department. Required signage shall be clearly visible, durable, and permanently affixed to the ground.

d. Prior to final approval of any critical area application, the applicant shall submit an affidavit of posting to the department as proof that the required signs were posted on the site.

I. Building Setbacks.

1. Unless otherwise provided in this title, buildings and other structures shall be set back a distance of 15 feet from the edge of all critical area buffers or, where no buffers are required, the edge of the critical area.

2. The following uses and activities may be allowed in the building setback area:

a. Landscaping;

b. Uncovered decks;

c. Building overhangs if such overhangs do not extend more than 18 inches into the setback area;

d. Impervious ground surfaces, such as driveways, parking lots, roads, walkways, and patios; provided, that such improvements conform to the water quality standards set forth in the city's adopted stormwater management manual and that construction equipment does not enter the buffer during the construction process; and

e. Clearing and grading. (Ord. 02-200 § 2).

J. Mitigation Sequence.

1. Adverse impacts caused by new activities and developments shall be mitigated using the following action in order of priority:

a. Avoiding the impact altogether by not taking a certain action or parts of an action;

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This section should be listed first under 14.10.080, replace B.

b. Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps, such as project redesign, relocation, or timing, to avoid or reduce impacts;

c. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;

d. Reducing or eliminating the impact over time by preservation and maintenance operations;

e. Compensating for the impact by replacing, enhancing, or providing substitute resources or environments; and

f. Monitoring the impact and the compensation project and taking appropriate corrective measures.

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14.10.085 Variances to critical areas.

A. General. Variances are reviewed pursuant to EMC 18.50.080, Variances. Conditions may be attached to a critical area(s) variance, which will serve to meet the goals, objectives, and policies of this title.

~~B. Criteria for Priority Habitat Buffer Variances. In order to grant a priority habitat buffer variance, requirements pursuant to EMC 18.50.080, Variances, shall apply. In addition, the applicant must also demonstrate, and the examiner must find, that the requested buffer width modification preserves adequate vegetation to: Variance Criteria. A variance may be granted only if the applicant demonstrates that the requested action conforms to all of the criteria set forth as follows:~~

~~1. Special conditions and circumstances exist that are peculiar to the land, the lot, or something inherent in the land, and that are not applicable to other lands in the same district;~~

~~2. The special conditions and circumstances do not result from the actions of the applicant;~~

~~3. A literal interpretation of the provisions of this title would deprive the applicant of all reasonable economic uses and privileges permitted to other properties in the vicinity and zone of the subject property under the terms of this title, and the variance requested is the minimum necessary to provide the applicant with such rights;~~

~~4. Granting the variance requested will not confer on the applicant any special privilege that is denied by this title to other lands, structures, or buildings under similar circumstances;~~

~~5. The granting of the variance is consistent with the general purpose and intent of this title, and will not further degrade the functions or values of the associated critical areas or otherwise be materially detrimental to the public welfare or injurious to the property or improvements in the vicinity of the subject property;~~

~~6. The decision to grant the variance includes the best available science and gives special consideration to conservation or protection measures necessary to preserve or enhance anadromous fish habitat; and~~

~~7. The granting of the variance is consistent with the general purpose and intent of the Edgewood Comprehensive Plan and adopted development regulations.~~

~~1. Maintain proper water temperature;~~

~~2. Minimize sedimentation; and~~

~~3. Provide food and cover for listed species.~~

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~~C. Additional Criteria for Flood Hazard Area Variances. In addition to the variance criteria specified above in subsection (B) of this section, a flood hazard area variance applicant must also demonstrate, and the hearing examiner must find, that the proposal satisfies all of the following: In order to grant a flood hazard area variance, requirements pursuant to EMC 18.50.080, Variances, shall apply. In addition, the applicant must also demonstrate, and the examiner must find, that the proposal satisfies all of the following:~~

1. Generally, the only condition under which a variance from the elevation standard may be issued is for new construction and substantial improvements to be erected on a small or irregularly shaped lot contiguous to and surrounded by lots with existing structures constructed below the base flood level. As the lot size increases the technical justification required for issuing the variance increases.
2. Variances shall not be issued within a designated floodway if any increase in flood levels during the base flood discharge would result.
3. Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
4. Variances shall only be issued upon:
 - a. A showing of good and sufficient cause;
 - b. A determination that failure to grant the variance would result in exceptional hardship to the applicant;
 - c. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.
5. Variances as interpreted in the National Flood Insurance Program are based on the general zoning law principle that they pertain to a physical piece of property; they are not personal in nature and do not pertain to the structure, its inhabitants, economic or financial circumstances. They primarily address small lots in densely populated residential neighborhoods. As such, variances from flood elevations should be quite rare.
6. Variances may be issued for nonresidential buildings in very limited circumstances to allow a lesser degree of floodproofing than watertight or dry-floodproofing, where it can be determined that such action will have low damage potential, complies with all other variance criteria (except 4.4-1), and otherwise complies with Sections 5.1-1, 5.1-3, and 5.1-4 of the General Standards.
7. Any applicant to whom a variance is granted shall be given written notice that the permitted structure will be built with its lowest floor below the base flood elevation and that the cost of flood insurance will be commensurate with the increased risk.

D. Should a variance be denied, the application will be reviewed as a reasonable use exception pursuant to EMC 14.20.050. (Ord. 17-492 § 2 (Exh. A); Ord. 02-200 § 2).

14.10.090 Reconsideration and appeal procedures.

Procedures for appeal of an administrative decision and procedures for reconsideration or appeal of a hearing examiner decision issued pursuant to this title are set forth in EMC 18.40.090, Process II – Administrative action. (Ord. 02-200 § 2).

14.10.100 Fees.

Fees for applications and/or review of reports, studies, or plans filed pursuant to this title are set forth in the adopted fee schedule and as stipulated below:

A. Fee Establishment. The city, by resolution, shall establish fees for filing of critical area review processing and other services provided by the city as required by this title. These fees shall be based on the anticipated sum of direct costs incurred by the city for any individual development or action and may be established as a sliding scale that will recover all of the city costs. Basis for these fees shall include, but not be limited to, the cost of engineering and planning review time, cost of inspection time, costs for administration, and any other special costs attributable to the critical area review process.

B. Applicant Responsibilities. Unless otherwise indicated in this title, the applicant shall be responsible for the initiation, preparation, submission, and expense of all required reports, assessment(s), studies, plans, reconnaissance(s), peer review(s) by qualified consultants, and other work prepared in support of or necessary to review the application.

The Edgewood Municipal Code is current through Ordinance 17-498, passed April 11, 2017.

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"Processing Procedures are likely to change with other code updates currently in review. The reference to EMC 18.40.090 may need revising accordingly as the code update moves forward. It should be flagged for future editing."

C. Fee Schedule. The director is charged with the responsibility of collecting appropriate fees charged to applicants for any permits or discretionary approval processes provided for in this title. The amount of the fees charged shall be as established by resolution or ordinance of the city council filed in the office of the city clerk and may be, from time to time, changed without amendment to this title.

D. Payment. Fees established in accordance with this title shall be paid upon submission of a signed application or petition for appeal, or as otherwise provided by any fee ordinance or resolution adopted by the city council. A department of the city shall not be required to pay application fees when applying for a permit regulated under this title. Where such an application will require substantial review time or expenditures, the mayor may, at his/her sole discretion, direct that the department initiating the permit request to reimburse the community development department for some or all of costs expended for the application review.

E. Investigation Fee. To investigate violations of this title, all city fees associated with investigation of violations of this title may be assessed at the adopted billable staff hour rate in addition to any required consultant costs, legal costs, and other expenses necessary to complete the investigation of the violation. The payment of such investigation fees shall not exempt any person from compliance with all other provisions of this title, nor from penalties prescribed by law.

~~F. Fees for Environmental Assessments and EISs. Environmental assessment/checklist fees for the construction, alteration, or repair of single- or two-family dwellings may be waived when the application provides sufficient documentation showing, to the satisfaction of the city, who shall make written findings, that all of the following conditions exist:~~

- ~~1. The single- or two-family dwelling is intended for low-income families. Low-income families are those families who meet the low-income guidelines as set forth by the city of Edgewood community development department; Department of Housing and Urban Development (HUD) annual guidelines, Section 8;~~
- ~~2. The construction, alteration, or repair of the single- or two-family dwelling involves some volunteer labor; and~~
- ~~3. The construction, alteration, or repair is being undertaken by an organization classified as a 501(c)(3) nonprofit organization by the Internal Revenue Service; or~~
- ~~4. The construction, alteration, or repair is being undertaken by Pierce County department of community services housing rehabilitation or authorized agent. (Ord. 16-482 § 2 (Exh. C); Ord. 02-200 § 2).~~

14.10.110 Compliance.

A. The regulations for compliance with the provisions of this title are set forth in EMC 18.30.040, Scope and compliance.

B. When a critical area or its required buffer has been altered in violation of this title, the department shall require the property owner to bring the site into compliance. The property owner shall be required to submit the appropriate critical area application and commence a departmental review, as applicable for each chapter of this title. In addition to any required site investigation, delineations, assessments, reports, etc., the property owner shall be required to submit a restoration plan that identifies the proposed mitigation to bring the subject property into compliance with the requirements of this title. (Ord. 02-200 § 2).

14.10.120 Warning and disclaimer of liability.

The degree of protection required through application of this title is deemed to be reasonable for regulatory purposes and is based on ~~scientific and engineering considerations~~ **best available science**; however, natural events that may exceed the geographic boundaries regulated under this title can and will occur (e.g., flood heights that are higher ~~than~~ anticipated). This title does not mean to imply that land outside designated hazard areas or uses permitted within such areas will be free from damages. Application of this title shall not create liability on the part of the city, any officer or employee thereof, or the Federal Insurance Administration for any damages that may result from the administration of this title or any administrative decision lawfully made hereunder. (Ord. 02-200 § 2).

Commented [AM13]: City attorney to review this section

14.10.130 Severability.

If any provision of this title or its application to any person or circumstance is held to be invalid or unconstitutional, then said holding shall in no way affect the validity or application of the remainder of this regulation to other persons or circumstances. (Ord. 17-492 § 2 (Exh. A); Ord. 02-200 § 2).

14.10.135 Violation – Civil infraction.

A. In addition to any other sanction or penalty, or any remedial, judicial or administrative procedure available under city code or state law, violation of any provision of this title or failure to comply with a decision of the responsible official, hearing examiner, or city council issued pursuant to this title constitutes a civil infraction.

B. Each day or portion thereof during which a violation occurs or exists shall be deemed a separate civil infraction. A person found to have committed a civil infraction shall be assessed a monetary penalty. The maximum penalty and the default amount for a civil infraction shall be \$250.00, not including statutory assessments. In addition:

1. The court may consider dismissing with costs only upon a showing that the violation was corrected within 30 days.
2. Whenever a monetary penalty is imposed by a court under this title, it is immediately payable. If the person is unable to pay at that time, the court may grant an extension. If the penalty is not paid on or before the time established for payment, the court may proceed to collect the penalty in the same manner as other civil judgments and may notify the prosecuting attorney of the failure to pay.
3. Payment of a monetary penalty or performance of the required community service shall not relieve a person of the duty to correct the violation.
4. The court may also order a person found to have committed a civil infraction to make restitution. (Ord. 02-200 § 2).

14.10.140 Appendixes.

A. Mapping Sources.

B.A. Title and Plat Notification Forms.

APPENDIX A

MAPPING SOURCES

The following sources of information and/or best available science may be used to indicate the presence of critical areas within Edgewood and provide data used in the development of the city of Edgewood critical areas atlas maps:

A. The following sources identify wetlands that are depicted in the Edgewood wetland inventory map and/or used as indicators of wetland presence:

1. Soil Survey of Pierce County Area, Washington, 1979, Soil Conservation Service, United States Department of Agriculture (USDA);
2. National Wetland Inventory Maps, U.S. Department of Interior, Fish and Wildlife Service, 1973;
3. Potential flood hazard areas as identified under subsection (G) of this section;
4. Aerial photographs, Department of Natural Resources, 1985 (Assessor's Office aeriels) or city-acquired aerial photographs;
5. Applicant supplied and verified data;
6. Ongoing field investigation to categorize and delineate wetlands; and

Commented [JWM14]: What is the replacement for mapping source identification? Just moving to individual sections?

~~7. Buildable Lands Wetland Inventory, 2001.~~

~~B. The following sources identify landslide and erosion hazard areas that are depicted in the critical areas landslide hazard area map and erosion hazard areas map and/or used as indicators of landslide and erosion hazard area presence:~~

- ~~1. Soil Survey of Pierce County Area, Washington, 1979, Soil Conservation Service, United States Department of Agriculture (USDA);~~
- ~~2. Areas designated as slumps, earthflows, mudflows, lahars, or landslides on maps published by the United States Geological Survey or Washington Department of Natural Resources Division of Geology and Earth Resources;~~
- ~~3. The city of Edgewood topographic data;~~
- ~~4. United States Geologic Survey Quadrangle maps;~~
- ~~5. Applicant supplied and verified data of active landslide areas and potentially unstable areas; and~~
- ~~6. Buildable Lands Slope Data, 2001.~~

~~C. The following sources identify seismic hazard areas which are depicted in the critical areas seismic hazard areas map and/or used as indicators of seismic hazard areas presence:~~

- ~~1. Washington State Department of Natural Resources Division of Geology and Earth Resources 1-100,000 Scale Digital Geology of Washington State; and~~
- ~~2. Areas designated as faults or subject to liquefaction or dynamic settlement on maps or data published by the United States Geological Survey or Washington Department of Natural Resources Division of Geology and Earth Resources.~~

~~D. The following sources identify volcanic hazard areas that are depicted in the Critical Areas Atlas — Volcanic Hazard Areas Map:~~

- ~~1. “Map Showing Debris Flows and Debris Avalanches at Mount Rainier, Washington—Historical and Potential Future Inundation Areas,” Hydrogeologic Investigations Atlas HA-729, U.S. Department of Interior, Geologic Survey, 1995, as amended by Kevin Scott, USGS, on November 10, 1997, to be consistent with the reports listed in subsections (D)(1) and (2) of this section;~~
- ~~2. Volcano Hazards from Mount Rainier, Washington by Hoblitt, Walder, Driedger, Scott, Pringle, and Valancee, U.S. Geological Survey Open File Report 95-273, 1995;~~
- ~~3. Sedimentology, Behavior, and Hazards of Debris Flows at Mount Rainier, Washington, U.S. Geological Survey Professional Paper 1547, 1995; and~~
- ~~4. Table of Estimated Lahar Travel Times for Lahars 107 to 108 Cubic Meters in Volume (Approaching a “Case F” Lahar in Magnitude) in the Puyallup River Valley, Mount Rainier, Pierson, T.C., 1998, An empirical method for estimating travel times for wet volcanic mass flows; Bulletin of Volcanology, v. 60, p. 98-109.~~

~~E. The following sources identify fish and wildlife habitats or presence and/or are used as indicators of critical fish or wildlife presence:~~

- ~~1. Water Type Reference Maps, Washington Department of Natural Resources, were used as sources to identify fish and wildlife habitat areas that are depicted in the Critical Areas Fish and Wildlife Habitat Areas—Stream Typing Map;~~
- ~~2. Priority Habitats and Species Program and Priority Habitat Species Maps, Washington Department of Fish and Wildlife (WDFW);~~

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3. Water Resource Index Areas (WRIA), Washington Department of Fish and Wildlife; and

4. Salmon Distribution Maps, WDFW and Washington State Conservation Commission Data, January 2000.

F. The following sources identify the aquifer recharge, pothole and wellhead protection areas that are depicted in the Critical Areas Aquifer Recharge Area — DRASTIC Zones Map and Aquifer Recharge Area:

1. The boundaries of the two highest DRASTIC zones which are rated 180 and above on the DRASTIC index range, as identified in Map of Groundwater Pollution Potential, Edgewood, Washington, National Water Well Association, U.S. Environmental Protection Agency;

2. Wellhead protection areas as identified by the Mountain View/Edgewood Water Company.

G. The following sources identify flood hazard areas:

1. The areas of special flood hazard identified by the Federal Insurance Administration in a scientific and engineering report entitled “The Flood Insurance Study for Pierce County, Washington and Incorporated Areas” dated March 7, 2017, with accompanying FIRMs and any map amendments or corrections are hereby adopted by reference and declared to be a part of this title. The Flood Insurance Study and FIRMs are on file at Edgewood City Hall, 2224 104th Avenue East, Edgewood, Washington, 98371. The city may add or delete land from areas of special flood hazard or revise base flood elevations, utilizing best available information for flood hazard identification in accordance with federal regulations.

2. The city’s Surface Water Management Plan, 1997, or as amended thereafter.

3. Aerial photographs of the city, especially those taken in wintertime 1996 and 1997.

4. The city’s two-foot elevation contour mapping performed by Nies Mapping Group, Inc., 1999, or as subsequently updated.

5. Relevant and verifiable information from the city’s Capacity Analysis Technical Review AdHoc Committee draft report, 2000.

6. Relevant and verifiable government and citizen photographs, notes, observations, etc., regarding historic ponding/flooding levels.

7. Relevant and verifiable information available through Pierce County.

8. Relevant and verifiable information available through FEMA.

9. Where the flood insurance study, FIRM, and floodway maps do not provide adequate, best, or most recent information, the city may utilize flood information that is more restrictive or detailed than the FEMA data which can be used for identifying flood hazard areas. This information may include, but is not limited to, new and more accurate mapping or data on: channel migration, high water elevations from flood events, base flood elevations, groundwater flooding areas, potholes, maps showing increased flood inundation based on future build-out or changed hydrologic conditions, specific maps from watershed basin plans or related studies, studies by federal or state agencies, or other information deemed appropriate by the city.

APPENDIX **AB**

TITLE AND PLAT NOTIFICATION FORMS

A. Notice for Title Notification.

1. (Example: Appropriate Critical Area from EMC 14.10.030)

The Edgewood Municipal Code is current through Ordinance 17-498, passed April 11, 2017.

Tax Parcel Number:

Address:

Legal Description:

Present Owner:

NOTICE: This property contains (e.g., wetlands or wetland buffers) as defined by EMC 14.10.030. The site was the subject of a development proposal for _____ application number filed on _____ (date). Restrictions on use or alteration of the site may exist due to natural conditions of the property and resulting regulations. Review of such application has provided information on the location of the (e.g., wetland or wetland buffers) and any restriction on use.

Date Signature of owner

Notary acknowledgment and notary seal

B. Additional Title Notification Statements.

1. Title notification for liquefaction and dynamic settlement hazard areas shall include a statement of the performance criteria (i.e., protection of life safety only, provision for minimal structural damage so that post-earthquake functionality is substantially unchanged, no structural damage for the design earthquake).
2. Title notification for fault rupture hazard areas shall include a statement that a fault rupture hazard area or associated buffer exists on the site. The title notification shall include a site plan of the subject property with the fault rupture hazard area and associated buffer identified.
3. Properties that contain flood hazard areas pursuant to Chapter 14.70 EMC shall include the following statement:

Flood Elevation Certificates are kept on file by the ~~d~~Department.

C. Notice for Plat Notification/Plat Notes.

1. General. The following notice shall be placed on the face of the final plat, short plat, large lot, or binding site plan documents when said subdivision contains critical areas or critical area buffers:

Notice: This site lies within a (e.g., landslide hazard area) as defined in EMC Title 14. Restrictions on use or alteration of the site may exist due to natural conditions of the site and resulting regulation.

2. Native/~~Natural~~ Vegetation Preservation Areas. The following notice shall be placed on the face of the final plat, short plat, large lot, or binding site plan documents when said subdivision contains critical areas or critical area buffers and when said critical areas or critical area buffers have been identified as native/natural vegetation preservation areas.

Notice: The Critical Areas (~~e.g., Oregon White Oak Preservation Areas~~) appearing on this (final site plan/preliminary plat/final plat/short plat/large lot/engineering drawing) contain areas of ~~natural~~/native vegetation intended to buffer the Critical Area from the adverse effects of development. These Critical Areas (~~e.g., Oregon White Oak Preservation Areas~~) shall remain and be maintained in a natural, undeveloped, open space state. There shall be no clearing, grading, filling, or construction within the Critical Areas (~~e.g., Oregon White Oak Preservation Areas~~), except as shown on plans or documents approved by the City of Edgewood and contained in the official files for this development. Each Critical Area (~~e.g.,~~

~~Oregon White Oak Preservation Area~~ shall remain undisturbed except for periodic watering and hand weeding of plants designated as noxious by the State of Washington.

3. Plat Notes for Flood Hazard Areas. The following notes shall be placed on the face of any of final plat, short plat, large lot, or binding site plan documents which lie within a flood hazard area.

- a. Grading, clearing, and/or filling within the limits of the 100-year floodplain is prohibited except for watercourse related construction, repair, and/or maintenance work that is done by the city for management operations.
- b. If a higher frequency event occurs or if existing conditions upon which the flood hazard area boundaries were based were to change or occur differently than depicted, then the level of protection afforded by the existing levee, if applicable, and flood hazard area standards may not be adequate to prevent the subject site from flooding.
- c. All purchasers and developers (and/or their agents) of property within the subject development area and/or parcel shall take notice of the above conditions and hereby agree to defend, indemnify, and hold harmless Edgewood from any and all claims, losses, costs, liabilities, or damages of any nature imposed upon or asserted against Edgewood arising out of or caused by the city's issuance of approval or by issuance of any other permits arising out of this approval.
- d. All occupants and/or owners of property in the subject area assume the risk of flooding which may occur and waive any claims against Edgewood arising out of damage or injury to person or property resulting therefrom. (Ord. 17-492 § 2 (Exh. A); Ord. 16-461 § 3; Ord. 02-200 § 2).

~~14.10.150—Figures.~~

~~A. Figure 14.10-1, Foundation Footing Setback.~~

~~B. Figure 14.10-2, Critical Area Protective Measures—Tracts.~~

~~(Ord. 02-200 § 2).~~

Chapter 14.20
USE AND ACTIVITY REGULATIONS

Sections:

- 14.20.010 Permitted uses.
- 14.20.020 Regulated uses and activities.
- 14.20.030 Exemptions.
- 14.20.040 Nonconforming uses and structures.
- 14.20.050 Reasonable use exceptions.
- ~~14.20.060 Current use assessment program.~~ 14.20.060 Critical areas reports
- ~~14.20.070 Mitigation plans~~

Commented [t15]: Organization:
Both 14.20.060 and .070 appear at an awkward place here.
Could they be moved to 14.10? The CAR and mitigation
sections usually comes after mapping and determination of
jurisdiction in a General provisions section.

14.20.010 Permitted uses.

Uses permitted on properties designated as critical areas shall be the same as those permitted in the zone classification shown in the city's zoning atlas unless specifically prohibited by this title. (Ord. 02-200 § 2).

14.20.020 Regulated uses and activities.

A. Unless the requirements of this title are met, the department shall not grant any approval or permission to alter the condition of any land, water, or vegetation, or to construct or alter any structure or improvement regulated through the following: building permit, commercial or residential; binding site plan; franchise right-of-way construction permit; site development permit; right-of-way permit; short subdivision; large lots; use permits; subdivision; utility permits; or any subsequently adopted permit or required approval not expressly exempted by this chapter.

B. The following activities are regulated ~~within a critical fish and wildlife habitat area, wetland, aquifer recharge area, landslide or erosion hazard area, flood hazard area, within critical areas~~ and/or their buffers, unless exempted by EMC 14.20.030:

1. Removing, excavating, disturbing, or dredging soil, sand, gravel, minerals, organic matter, or materials of any kind;
2. Dumping, discharging, or filling;
3. Draining, flooding, or disturbing the water level or water table. In addition, an activity which involves intentional draining, flooding, or disturbing the water level or water table in a wetland or stream in which the activity itself occurs outside the regulated area shall be considered a regulated activity;
4. Driving, piling or placing obstructions, including placement of utilities;
5. Constructing, reconstructing, installing, demolishing, or altering the size of any structure or infrastructure, including manufactured and/or mobile homes;
6. Altering the character of a regulated area by destroying or altering vegetation through clearing, harvesting, cutting, intentional burning, shading, or planting;
- ~~7. Activities which result in significant changes in water temperature or physical or chemical characteristics of wetland or stream water sources, including changes in quantity of water and pollutant level;~~
- ~~8. Application of pesticides, fertilizers, and/or other chemicals unless demonstrated not to be harmful to the regulated area;~~
9. The division ~~or redivision~~ of land;

The Edgewood Municipal Code is current through Ordinance 17-498, passed April 11, 2017.

10. The creation of ~~hard~~ impervious surfaces.

~~11. The city adopts the Forest Practice Act (Chapter 76.09 RCW) by reference. (Ord. 17-492 § 2 (Exh. A); Ord. 02-200 § 2).~~

14.20.030 Exemptions.

~~A. All exempted~~ Exempted activities shall use reasonable methods to avoid potential impacts to critical areas and their buffers to the greatest degree feasible. To be exempt from this title does not give permission to degrade a critical area or its buffer or ignore risk from natural hazards. Any incidental damage to, or alteration of, a critical area or its buffer that is not a necessary outcome of the exempted activity shall be restored, rehabilitated, or replaced at the responsible party's expense.

~~B. The following activities are exempt from the provisions of this title:~~

~~The following activities are exempt from the provisions of this title:~~

~~A. Existing agricultural activities established prior to February 2, 1992; that after that date, do not cause permanent conversion of a critical area through actions such as filling, ditching, draining, clearing, grading, etc.; provided, that:~~

~~1. Existing agricultural activities and structures shall comply with the provisions of Chapter 14.70 EMC, Flood Hazard Areas; and~~

~~2. Determination of an agricultural exemption status is limited to the specific area(s) upon which lawfully established agricultural activities are being conducted. A determination that an activity is exempt within one portion of a property does not necessarily extend to other portions of the property.~~

~~1. Operation, maintenance, or repair of existing structures, infrastructure improvements, utilities, public or private roads, dikes, levees, or drainage systems, that do not require construction permits, if the activity does not further alter or increase the impact to, or encroach further within, the critical area or buffer and there is no increased risk to life or property as a result of the proposed operation, maintenance, or repair. Operation and maintenance includes vegetation management performed in accordance with best management practices that is part of ongoing maintenance of structures, infrastructure, or utilities, provided that such management actions are part of ongoing maintenance, do not expand further into the critical area or buffer, are not the result of an expansion of the structure or utility, and do not directly impact an endangered or threatened species.~~

~~2. Normal maintenance or repair of existing structures or developments, including damage by accident, fire, or elements. "Normal maintenance" includes those usual acts to prevent a decline, lapse, or cessation from a lawfully established condition. "Normal repair" means to restore a development to a state comparable to its original condition including, but not limited to, its size, shape, configuration, location, and external appearance, within a reasonable period after decay or partial destruction, except where repair causes substantial adverse effects to critical areas or their buffers. Replacement of a structure or development may be authorized as repair where such replacement is the common method of repair for the type of structure or development and the replacement structure or development is comparable to the original structure or development including, but not limited to, its size, shape, configuration, location, and external appearance and the replacement does not cause substantial adverse effects to critical areas or their buffers.~~

~~B. Maintenance or reconstruction of existing, lawfully established public facilities; provided, that reconstruction does not involve expansion of the facility:~~

~~1. Roads, paths, bicycle ways, trails, bridges, and associated storm drainage facilities or other public rights-of-way;~~

~~2. Flood control improvements such as, but not limited to, levees, revetments, floodwalls, regional storm drainage facilities, drainage structures, or channel capacity projects to protect public infrastructure and/or existing development, when administered by Edgewood public works and utilities; provided, that the work shall:~~

~~a. Not increase the height of the facility or linear length of the affected stream edge;~~

Commented [JWM16]: Disagreed – We made this change in our recent Flood Code update to include **all** hard surfaces, not just impervious surfaces, so there can be some regulation and/or review.

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~~b. Not expand the footprint of the facility waterward or into any landward aquatic habitat; and~~

~~c. Use approved fish-friendly bioengineering techniques to the extent feasible.~~

~~C. Maintenance or reconstruction of existing private roads, driveways, on-site septic systems, and wells; provided, that reconstruction does not involve expansion of facilities, widening, or relocation.~~

~~D. For the following utility activities, when undertaken pursuant to best management practices to avoid impacts to critical areas:~~

~~1. Normal and routine maintenance or repair of existing utilities that does not include any expansion.~~

~~2. Installation, replacement, operation, repair, alteration, extension, or construction of all utility lines, equipment, or appurtenances in improved city road rights-of-way.~~

~~3E. Reconstruction, remodeling, or maintenance of existing single-family residential structures and accessory structures that are located outside a flood hazard area and active landslide hazard area; provided, that a one-time only expansion of the building footprint does not increase by more than 25 percent and that the new construction or related activity does not further intrude into the critical area or related buffer. The exemption shall not apply to reconstruction which is proposed as a result of structural damage associated with a critical area, such as slope failure in a landslide hazard area or flooding in a flood hazard area.~~

~~4F. Reconstruction, remodeling, or maintenance of structures, other than single-family structures and accessory structures that are located outside a flood hazard area or active landslide hazard area; provided, that such reconstruction, remodeling, or maintenance does not increase the floor area nor extend beyond the existing ground coverage. The exemption shall not apply to reconstruction which is proposed as a result of site or structural damage associated with a critical area, such as slope failure in a landslide hazard area or flooding in a flood hazard area.~~

~~5G. Site investigative work necessary for land use application submittals such as surveys, soil logs, percolation tests, and other related activities. Critical area impacts shall be minimized and disturbed areas shall be immediately restored.~~

~~6H. Emergency actions necessary to prevent imminent threat or danger to public health or safety, or to public or private property, or serious environmental degradation.~~

~~a1. The department shall review all proposed emergency actions to determine the existence of the emergency and reasonableness of the proposed actions taken; however, post-emergency actions, such as submittal of permits, completion of city review, modification or removal of the emergency repair work, or mitigation shall be required by the department.~~

~~b2. Shoreline erosion protection measures shall only be allowed as an emergency action when the owner can demonstrate that there is an imminent threat to an existing residential, commercial, industrial, or agricultural structure. The owner shall retain either city staff or an engineering geologist to conduct a site investigation and provide adequate documentation that the situation is actually an emergency. An emergency action is not warranted when the structure is located outside the active landslide or shoreline erosion hazard area.~~

~~c. After the emergency, the person or agency undertaking the action shall fully fund and conduct necessary restoration and/or mitigation for any impacts to the critical area and buffers resulting from the emergency action in accordance with an approved critical area report and mitigation plan. The person or agency undertaking the action shall apply for review, and the alteration, critical area report, and mitigation shall be reviewed by the department in accordance with the review procedures contained herein. Restoration and/or mitigation activities must be initiated within one (1) year of the date of the emergency activity, and completed in a timely manner.~~

~~7. Installation, construction, replacement, repair, operation or alteration of natural gas, cable and telecommunication facilities, electric facilities and lines, water, sewer or storm lines, pipes, mains, equipment or appurtenances in publicly owned right-of-way (which may be within or adjacent to a critical~~

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Commented [JWM17]: We mention 60 days in other areas of the code regarding emergency work... Do we want a shorter time limit here?

The Edgewood Municipal Code is current through Ordinance 17-498, passed April 11, 2017.

area or its buffer), subject to full review and approval of the department, including any mitigation and restoration requirements established by the department.

I. Activities in artificial wetlands, except those artificial wetlands intentionally created from nonwetland 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. However, wetlands may include those artificial wetlands intentionally created from nonwetland areas, created to mitigate conversion of wetlands, if permitted by the department.

J. Activities affecting:

1. Category III wetlands less than 2,500 square feet in size which fail to meet the definition of an associated wetland, and which are not part of a mosaic wetland system as set forth in EMC 14.30.020(E)(2).
2. Category IV wetlands less than 10,000 square feet in size and which fail to meet the definition of an associated wetland, and which are not part of a mosaic wetland system as set forth in EMC 14.30.020(E)(2).
3. Category III and IV wetlands exempted under this section may still be regulated under the provisions of the city's adopted stormwater management manual.

K. Placement of access roads, utility lines, and utility poles across a Category IV wetland and/or a buffer for a Category IV wetland if there is no reasonable alternative.

L. Activities on improved portions of roads, rights-of-way, or easements; provided, there is no expansion of ground coverage.

M. Activities in wetlands in areas managed according to a special area management plan or other plan adopted by the department and specifically designed to protect wetland resources.

N. Removal by hand of manmade litter and control of noxious weeds that are included on the state noxious weed list (Chapter 16-750 WAC) or invasive plant species as identified by the city. Control may be conducted by clipping, pulling, or digging, or by an alternative nonmechanical method upon approval of a plan by the department.

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O. Activities undertaken to comply with a United States Environmental Protection Agency superfund order, or a Washington Department of Ecology order, pursuant to the Model Toxics Control Act, including the following activities:

- a1. Remediation or removal of hazardous or toxic substances;
- b2. Source control; and
- c3. Natural resource damage restoration.

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P. Maintenance activities of landscaping and gardens in a required buffer, including but not limited to, mowing lawns, weeding, harvesting, and replanting of garden crops, pruning and planting of vegetation to maintain the condition and appearance of the site existing on February 1, 1992.

Q. Activities designed for previously approved maintenance and enhancement of critical areas and/or their associated buffers.

R. Activities undertaken on the site of an existing holding pond where the water flow and/or water table is controlled by a previously approved pump system.

S. A residential building permit for a lot which was created through a land division action subject to previous reports and assessments as required under this title; provided, that the previous reports and assessments adequately identified the impacts associated with the current development proposal.

The Edgewood Municipal Code is current through Ordinance 17-498, passed April 11, 2017.

T. Maintenance of individual cemetery plots in established and approved cemeteries:

~~10U.~~ Activities within a portion of a wetland buffer or fish and wildlife habitat conservation area buffer located landward of an existing, substantially developed area, such as a paved area, dike, levee, or permanent structure which eliminates or greatly reduces the impact of the proposed activities on the wetland or fish and wildlife habitat conservation area. The department shall review the proposal to determine the likelihood of associated impacts.

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~~11V.~~ Passive recreation such as hunting, hiking, fishing, and wildlife viewing that does not involve the construction of trails.

~~12W.~~ Enhancement actions that do not involve clearing, grading, or construction activities (e.g., revegetation with native plants and installation of nest boxes). Enhancement activity proposals shall be reviewed by the department.

13. Forest practices conducted in accordance with the requirements of the Forest Practice Act (Chapter 76.09 RCW) and its rules, with the exception of the conversion of forest land to a use other than commercial forestry (Class IV conversions).

14. Existing and ongoing agricultural activities, provided that they implement applicable Best Management Practices (BMPs) contained in the latest editions of the USDA Natural Resources Conservation Service Field Official Technical Guide; or develop a farm conservation plan in coordinate with the local conservation district. BMPs and/or farm plans should address potential impacts to critical areas from livestock, nutrient and farm chemicals, soil erosion and sediment control and agricultural drainage infrastructure. BMPs and/or farm plans should ensure that ongoing agricultural activities minimize their effects on water quality, riparian ecology, salmonid populations, and wildlife habitat.

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~~X. Maintenance or repair of existing shoreline erosion protection measures or structures; provided, that the repair shall not serve to expand any existing structures or increase the impacts of such structure on critical fish or wildlife habitat.~~

~~Y. In addition to the general exemptions listed in this section, the following uses or activities are exempt from the provisions of Chapter 14.50 EMC, Aquifer Recharge and Wellhead Protection Areas:~~

- ~~1. Sewer lines and appurtenances;~~
- ~~2. Biosolids and sludge land application sites; provided, that these activities comply with the requirements established in Chapters 173-200, 173-216, and 173-304 WAC; and~~
- ~~3. Single-family and two-family dwellings and associated accessory structures. (Ord. 02-200 § 2).~~

14.20.040 Nonconforming uses and structures.

An established use or existing structure located in a wetland, ~~critical~~ fish and wildlife habitat conservation area, landslide or erosion hazard area, flood hazard area, and their associated buffers that was lawfully permitted prior to February 1, 1992, the effective date of this title, but which is not currently in compliance with this title, may continue subject to the following:

A. Nonconforming Use Expansion. Nonconforming uses shall not be expanded or changed in any way that increases the nonconformity without a permit issued pursuant to the provisions of this title.

B. Nonconforming Structure Expansion. Existing structures shall not be expanded or altered in any manner that will increase the nonconformity without a permit issued pursuant to the provisions of this title, except as provided in EMC 14.20.030 ~~(F) and (G)~~ (B).

C. Discontinued Uses. Activities or uses which are discontinued for 12 consecutive months shall be allowed to resume only if they are in compliance with this title.

D. Substantial Damage. Nonconforming structures, except for structures located in a flood hazard area or active landslide hazard area which are damaged or destroyed by fire, explosion, flood, or other casualty, may be restored or

replaced if reconstruction is commenced within one year of such damage and is substantially completed within 18 months of the date such damage occurred. The reconstruction or restoration shall not serve to expand, enlarge, or increase the nonconformity except as allowed through the provisions in EMC 14.20.030~~(F) and (G)~~~~(B)~~. Structures in a floodway or active landslide hazard area may be allowed to be restored only up to the limits of substantial improvement, as set forth in each chapter. (Ord. 02-200 § 2).

14.20.050 Reasonable use exceptions.

A. General Requirements.

1. If the application of this title would deny all reasonable use of a site, development may be allowed which is consistent with the general purposes of this title and the public interest. Nothing in this title is intended to preclude all reasonable use of property.

2. The provisions outlined in this section shall only be used when application of this title would deny all reasonable use of a site.

~~3. Reasonable use provisions shall apply to new construction, expansions, additions, replacements, and redevelopment projects.~~

~~4.3.~~ Applications for a reasonable use shall automatically constitute an application for a variance to reduce front, side, or rear yard setback requirements. The hearing examiner shall examine the feasibility of reducing setbacks as a method of locating a structure outside a critical area or its associated buffer prior to granting a reasonable use exception for allowing construction to occur within a critical area or its associated buffer. Reductions in setback requirements shall be given preference over granting of a reasonable use exception.

~~5. The proposed impact to the critical area shall be the minimum necessary to allow for reasonable economic use of the property.~~

~~6. Mitigation may be required to assure that the proposal will result in no net loss of critical area functions and values, consistent with the best available science.~~

~~7.5.~~ The creation of new lots within critical areas and their associated buffers is prohibited.

~~8.6.~~ The proposal must comply with all provisions in Chapter 14.70 EMC, Flood Hazard Areas, and Chapter 14.80 EMC, Landslide Hazard Areas.

B. Application Requirements. An application for a reasonable use exception shall include the following information:

1. A description of the areas of the site that contains a critical area, buffers, or within setbacks required under this title;
2. A description of the amount of the site that is within setbacks required by other standards of the zoning code;
3. A description of the proposed development, including a site plan;
4. An analysis of the impact that the amount of development described in subsection (B)(3) of this section would have on the critical area(s);
5. An analysis of whether any other reasonable use with less impact on the critical area(s) and associated buffer(s) is possible;
6. A design of the proposal so that the amount of development proposed as reasonable use will have the least impact practicable on the critical area(s);
7. An analysis of the modifications needed to the standards of this title to accommodate the proposed development;

8. A description of any modifications needed to the required front, side, and rear setbacks; building height; and buffer widths to provide for a reasonable use while providing greater protection to the critical area(s);

9. Such other information as the department determines is reasonably necessary to evaluate the issue of reasonable use as it relates to the proposed development, such as but not limited to a wetland analysis report, mitigation plan, habitat evaluation study, and/or a buffer enhancement plan.

C. Review.

1. Public Hearing Required. The department shall set a date for a public hearing before the hearing examiner after all requests for additional information or plan correction, as set forth in EMC 18.40.150, have been satisfied. The public hearing shall follow the procedures set forth in EMC 18.40.190, Notice of public hearing.

2. Decision Criteria. The hearing examiner may approve a reasonable use exception if the examiner determines the following criteria are met:

a. The proposed development is located on an existing lot of record that was created prior to the effective date of the ordinance codified in this title and there is no other reasonable use or feasible alternative to the proposed development with less impact on the critical area(s) and/or associated buffers including phasing or project implementation, change in timing of activities, buffer averaging or reduction, setback variance, relocation of driveway, or placement of structure.

b. The development cannot be located outside the critical area and/or its associated buffer due to topographic constraints of the parcel or size and/or location of the parcel in relation to the limits of the critical area and/or its associated buffer and a building setback variance or road variance has been reviewed, analyzed, and rejected as a feasible alternative.

c. The proposed development does not pose a threat to the public health, safety, or welfare on or off the site, nor shall it damage nearby public or private property.

d. Any alteration of the critical area(s) shall be the minimum necessary to allow for reasonable use of the property.

e. The inability of the applicant to derive reasonable use of the property is not the result of actions by the applicant in subdividing the property or adjusting a boundary line thereby creating the undevelopable condition after February 1, 1992.

f. The proposal mitigates the impacts on the critical area(s) to ~~the maximum extent possible~~ ensure no net loss of critical area functions, while still allowing reasonable use of the site.

g. The proposed activities will not jeopardize the continued existence of species listed by the state or federal government as endangered, threatened, sensitive, or documented priority species or priority habitats.

h. The proposed activities will not cause significant degradation of groundwater or surface water quality.

~~3. Additional Decision Criteria for Wetlands and Associated Buffers. In addition to the decision criteria listed in subsection (C)(2) of this section, a reasonable use exception for wetlands and associated buffers shall also demonstrate that the proposed activity will result in minimum feasible alteration or impairment to the wetland's functional characteristics and existing contours, vegetation, fish and wildlife resources, and hydrological conditions.~~

~~4. Additional Decision Criteria for Critical Fish and Wildlife Habitat Areas and Associated Buffers. In addition to the decision criteria listed in subsection (C)(2) of this section, the hearing examiner may approve a reasonable use exception for critical fish and wildlife habitat areas and associated buffers if the examiner determines that the proposal complies with the mitigation measures as set forth in EMC 14.40.050.~~

35. Hearing Examiner's Authority. The hearing examiner has the authority to approve an application for a reasonable use exception, approve with additional requirements above those specified in this title, require

modification of the proposal to comply with specified requirements or local conditions, or deny the application if it fails to comply with the requirements of this title.

46. Required Written Findings and Determinations. A reasonable use exception may be approved by the hearing examiner only if all of the following findings can be made regarding the proposal and are supported by the record:

- a. The granting of the proposal will not be detrimental to the public health, safety, and general welfare.
- b. The granting of the proposal will not be injurious to the property, regulated critical area(s), or improvements adjacent to and in the vicinity of the proposal.
- c. The proposal minimizes adverse environmental impacts to the maximum practicable extent and provides mitigation to offset any impacts.
- d. The granting of the proposal is consistent and compatible with the goals, objectives, and policies of the comprehensive plan; community plan, if applicable; and the provisions of this title. (Ord. 02-200 § 2).

14.20.060 — Current use assessment program.

A. An owner of agricultural land, timberland, or open space desiring current use classification under Chapter 84.34 RCW may file for such current use classification with the Pierce County assessor-treasurer's office.

B. The department shall notify the assessor-treasurer's office when restrictions on development occur on a particular site.

C. The assessor-treasurer's office shall consider the critical areas and buffering requirements of this title in determining the fair market value of land. Any owner of an undeveloped buffer which has been placed in a separate tract or tracts, protective easement, public or private land trust dedication, or other similarly preserved area shall have that portion of land assessed consistent with those restrictions. (Ord. 02-200 § 2).

14.20.060 Critical areas reports

A. When required in accordance with this title, the applicant shall submit a critical areas report.

B. The critical areas report shall use scientifically valid methods and studies in the analysis of critical area data and field reconnaissance to evaluate the proposed development and all probable impacts to critical areas in accordance with the provisions of this title. The report shall reference the source(s) of science used.

C. At a minimum the report shall contain the following:

1. The name and contact information of the applicant and a description of the proposal;
2. The site plan for the proposed development, including a map drawn to scale depicting critical areas, buffers, the proposed development, and any areas to be cleared or altered;
3. The names and qualifications of the persons preparing the report;
4. Documentation of any fieldwork performed on the site;
5. Identification and characterization of all critical areas and buffers on and adjacent to the proposed development;
6. A statement specifying the accuracy of the report, and all assumptions made and relied upon;
7. A discussion of the performance standards applicable to the critical area and proposed development;
8. A mitigation plan in accordance with EMC 14.20.070, if mitigation is required; and

The Edgewood Municipal Code is current through Ordinance 17-498, passed April 11, 2017.

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9. Any additional report information required for the critical area as specified in the following chapters.

14.20.070 Mitigation plans

When mitigation is required, the applicant shall submit a mitigation plan. The mitigation plan shall include all of the following:

A. Mitigation sequencing. A description of reasonable efforts made to apply mitigation sequencing pursuant to EMC 14.10.080(J) to avoid, minimize, and mitigate impacts to critical areas and buffers.

B. Mitigation details.

1. A description of the anticipated impacts to the critical area and buffer, including impacts to critical area functions and values;

2. The mitigating actions proposed, including: type of mitigation proposed (e.g., on-site or off-site); site selection criteria; identification of compensation goals; and identification of critical area functions.

3. The environmental goals and objectives of the mitigation, together with specific measurable criteria and performance standards for evaluating whether or not the goals and objectives of the mitigation project have been successfully attained;

4. A review of the best available science supporting the proposed mitigation; and

5. An analysis of the likelihood of success of the mitigation project.

C. Construction details. The mitigation plan shall include written specifications, descriptions, and drawings of the mitigation proposed, including:

1. Construction sequence, timing, and duration;

2. Grading and excavation details;

3. Erosion and sediment control features; and

4. Planting plan specifying plant species, quantities, locations, size, spacing, density, and measures to protect and maintain plants until established. All plant species must be native to the region.

D. Monitoring details.

1. A program for monitoring construction and assessing the outcome of the mitigation project, including the schedule for site monitoring (for example, monitoring shall occur in year 1, 3, and 5 after site construction), and how the monitoring data will be evaluated to determine if the performance standards are being met. Monitoring reports shall be submitted to document milestones, successes, problems, and contingency actions of the compensation project. The mitigation project shall be monitored for a period necessary to establish that performance standards have been met, but not for a period less than five (5) years. Mitigation monitoring shall be the responsibility of the applicant.

2. A contingency plan with courses of action and corrective measures to be taken if monitoring or evaluation indicates project performance standards are not being met.

E. Bond estimate. A bond estimate for the entire compensatory mitigation project, per the requirements of EMC 14.10.080(B).

F. Other requirements. The mitigation plan shall address any additional mitigation requirements relevant to the specific critical area as specified in the following chapters.

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Chapter 14.30

WETLANDS

Sections:

- 14.30.010 Purpose.
- 14.30.020 Wetland ~~areas~~ identification and rating.
- 14.30.030 Wetland review procedures.
- 14.30.040 ~~Wetland standards~~ Allowed activities.
- 14.30.050 ~~Mitigation-Buffer~~ requirements.
- 14.30.060 ~~Buffer-Mitigation~~ requirements.
- 14.30.070 Appendices.
- ~~14.30.080 Figures.~~

14.30.010 Purpose.

The purpose of this chapter is to avoid or, in appropriate circumstances, to minimize, rectify, reduce, or compensate for impacts arising from land development and other activities affecting wetlands, and to maintain and enhance the biological and physical functions and values of wetlands with respect to water quality maintenance, stormwater and floodwater storage and conveyance, fish and wildlife habitat, primary productivity, recreation, education, and historic and cultural preservation. When wetland impacts occur, mitigation will be required to achieve no net loss of wetlands in terms of acreage, function, and value. (Ord. 02-200 § 2).

14.30.020 Wetland ~~areas~~ identification, and rating delineation and rating.

A. ~~General~~ Designation. All areas within the city meeting the meeting the definition of "wetland" in EMC 14.10.060 are hereby designated critical areas.

B. Identification and Delineation. Wetlands shall be identified and delineated by a qualified wetland scientist in accordance with the approved federal wetland delineation manual and applicable regional supplements. Wetland delineations are valid for 5 years, after which date the City shall require verification that the wetland boundaries and prior conditions have not changed.

1. ~~Wetlands are those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.~~

2. ~~The city will require the use of the following documents to determine the presence or absence of potential wetlands:~~

a. ~~Federal Manual for Identifying and Delineating Jurisdictional Wetlands, Corps of Engineers Wetlands Delineation Manual, 1987 Edition, and corresponding guidance letters; and~~

b. ~~Washington State Wetlands Identification and Delineation Manual, March 1997 Edition (DOE Publication 96-94).~~

B. ~~Wetland Indicators~~. ~~Indicators of wetlands normally include, but are not limited to: saturated soils or standing water; water-tolerant plant species such as salmonberry, Oregon ash, Western red cedar, rushes and sedges; and dark brown or black soil colors. Refer to the documents listed in subsection (A)(2) of this section for detailed wetland indicator criteria.~~

C. Potential Wetland Areas ~~Mapping~~. Potential wetland areas, as depicted on the city's Critical Areas Atlas—Wetland Inventory Maps, are those areas where wetland indicators have been mapped or identified. Potential wetlands include:

1. Areas within 165 feet of hydric soils identified on the soil survey of Pierce County area, wetlands identified on the National Wetland Inventory Maps or Edgewood wetland inventory maps, areas of known flooding identified on the

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FEMA FIRM and flood insurance study maps, or any other indicators of hydrology such as Department of Natural Resource stream data.

2. Areas that possess one or a number of wetland indicators as set forth in subsection (B) of this section and any adjacent areas within 165 feet.

3. Areas within the buffer of any wetland previously identified through the wetland review process. The approximate location and extent of wetlands are shown on maps maintained by the city. These maps are useful as a guide for project applicants and/or property owners but do not provide a conclusive or definitive indication of wetland presence or extent. Other wetlands may exist that do not appear on the maps, and some wetlands that appear on the maps may not meet all of the wetland designation criteria. The city shall update the maps periodically as new wetland areas are identified and as new wetland information becomes available.

D. Wetland Categories. Wetlands shall be categorized by a qualified wetland scientist in accordance with the current version of the Washington State Wetland Rating System for Western Washington (Ecology, 2014) and the appropriate rating forms approved by the Washington State Department of Ecology. The wetland shall also be classified according to the U.S. Fish and Wildlife Service "Classification of Wetlands and Deep Water Habitats in the U.S." Wetlands shall be classified into categories which are reflective of each wetland's function and value and unique characteristics. Wetland categories shall be based on the generalized criteria provided in EMC 14.30.070, Appendix A, and the specific criteria provided in the Edgewood wetlands rating form provided in EMC 14.30.070, Appendix F. Wetlands shall be generally designated as follows:

1. Category I Wetlands. Category I wetlands are those regulated wetlands of exceptional resource value based on their functional value and diversity, wetland communities of infrequent occurrence, association with documented habitat for sensitive, threatened or endangered species, and other attributes which may not be adequately replicated through creation or restoration.

2. Category II Wetlands. Category II wetlands are those regulated wetlands of significant resource value based on their functional value and diversity, wetland communities of infrequent occurrence, and other attributes which may not be adequately replicated through creation or restoration.

3. Category III Wetlands. Category III wetlands are those regulated wetlands that have important resource value, principally due to vegetative diversity.

4. Category IV Wetlands. Category IV wetlands are those regulated wetlands of ordinary resource value based on monotypic vegetation of similar age and class, lack of special habitat features, and isolation from other aquatic systems.

E. Wetland Delineation Criteria.

1. Delineating Wetlands Divided by a Manmade Feature. When a wetland is divided by a manmade feature (e.g., a road embankment), the wetland shall be rated as if it is not divided if there is a perennial or intermittent surface water connection between the two wetlands and either of the following criteria are met:

a. It can be demonstrated that the separate wetlands were one discrete wetland prior to construction of the manmade feature. This may be accomplished through an analysis of secondary information such as aerial photographs and soils maps; or

b. The two separated wetlands can be shown to function as one wetland. This shall be determined based on normal conditions (i.e., in the absence of unauthorized activity, the wetlands possess similar vegetative or wildlife assemblages or hydrologic regime).

c. Separated wetland areas may be rated jointly in the absence of a perfectly level culvert with two-way water flow.

2. Connecting Mosaic Pattern Wetlands. In cases where there are no surface water connections, but the wetlands are separated from each other by less than 100 feet (on average), the DOE mosaic methodology shall be used to determine the wetland boundary. The area of the wetlands must be greater than 50 percent of the total combined

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area of wetland and upland for the patchwork to be considered on a wetland. In addition, the patchwork is to be encompassed in such a manner as to minimize the amount of upland area interspersed amongst the wetland areas (see EMC 14.30.080(A), Figure 14.30-1). (Ord. 16-461 § 4; Ord. 02-200 § 2).

14.30.030 Wetland review procedures.

A. Wetland Report Requirements. When the department's maps, sources, or field investigations indicate that the proposed project area is located within 300 feet of a known or suspected wetland, an applicant shall submit a wetland critical areas report prepared by a qualified wetland scientist. The requirement to provide a wetland critical areas report may be waived if the department determines that there are no potential direct and/or indirect impacts on wetlands or their buffers that would result from the proposed development. Wetland critical areas reports shall comply with the requirements established in EMC 14.30.070, Appendix A.

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A. General Requirements:

1. The city's Critical Areas Atlas—Wetland Inventory Maps provides an indication of where potential wetlands are located within the city. The actual presence or location of a potential wetland or a potential wetland that has not been mapped, but may be present on or adjacent to a site shall be determined using the procedures and criteria established in this chapter.

2. The department will complete a review of the city's Critical Areas Atlas—Wetland Inventory Maps and other source documents for any proposed regulated activity to determine whether the project area for a proposed single-family dwelling unit or site for all other proposed regulated activities is located within a potential wetland. Identification of a potential wetland may also occur as a result of field investigations conducted by department staff.

3. When the department's maps, sources, or field investigation indicate that a potential wetland is located within the project area for a proposed one-family dwelling unit or within the site for all other proposed regulated activities, the department shall require a site evaluation (field investigation) to determine whether or not a regulated wetland is present and if so, its relative location in relation to the proposed project area or site. The findings of the site evaluation shall be documented as outlined in subsections (B), (C), (D), or (E) of this section.

4. If department staff completes the site evaluation and determines that no regulated wetlands are present, then wetland review will be considered complete.

5. All site evaluations shall include a proposed categorization of the wetland in accordance with the guidelines set forth in EMC 14.30.020(B) and a calculation of the standard wetland buffer as set forth in EMC 14.30.060.

6. Unless otherwise stated in this chapter, the critical area protective measure provisions contained in EMC 14.10.080 shall apply.

B. General Wetland Review. A general wetland review shall include the submittal of a wetland verification report, wetland delineation report, or a wetland analysis report, together with a wetland application and appropriate fees (see EMC 14.30.080(B), Figure 14.30-2).

1. Wetland Verification Report:

a. A wetland verification report shall be submitted when the site evaluation determines that:

i. No regulated wetland is present within 165 feet of the site;

ii. A regulated wetland is present, but its standard buffer does not extend within the site; or

iii. Wetlands are identified but are evaluated and found to be exempt as set forth in EMC 14.20.030(K).

b. The wetland verification report shall include data sheets, site maps, and other field data and information necessary to confirm wetland presence or absence and category. If exempt wetlands (refer to EMC 14.20.030(K)) are identified, a site plan must be provided that identifies their location.

~~e. The wetland verification report shall identify and discuss wetland boundaries within the site as well as those that extend off-site. Off-site wetlands and associated standard buffers do not have to be marked in the field.~~

~~d. Department staff shall review the wetland verification report and either:~~

~~i. Accept the report and approve the wetland application; or~~

~~ii. Reject the report and require the submittal of a wetland analysis report.~~

~~2. Wetland Analysis Report.~~

~~a. If a regulated wetland or its standard buffer extends onto the site, the department shall require a wetland analysis report. Information required in a wetland analysis report is identified in EMC 14.30.070, Appendix B.~~

~~b. If the department determines that a Category I wetland is on-site which is associated with documented habitat for endangered, threatened, or sensitive species or for potentially extirpated plant species recognized by state or federal agencies, the department shall also require the submittal of a habitat assessment report as set forth in Chapter 14.40 EMC.~~

~~c. If the department determines that mitigation is necessary to offset the identified impacts, the applicant shall comply with the mitigation requirements set forth in EMC 14.30.050.~~

~~d. Approval of the wetland application shall be granted upon a determination that the wetland analysis report and mitigation plan, if applicable, are thorough and accurate, and meet all requirements of this title, and that the monitoring program and contingency plan are tied to an acceptable financial guarantee as set forth in EMC 14.10.080 to assure that the requirements will be followed.~~

~~B. 3. Time Limitations. Wetland delineations and reports that have been accepted by the city shall be valid for a period of five (5) years, unless the department determines that new information warrants revision of the delineation or report.~~

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~~a. General. Delineation reports and mitigation plans that have not been accepted by the city for a project are valid for a period of four years unless a longer period is approved by the department.~~

~~b. Extensions. A one-year extension may be approved by the department upon written request for such extension of that delineation report or mitigation plan.~~

~~C. Single-Family Dwelling Wetland Review. Two alternative review procedures exist for construction of a single-family dwelling and regulated activities accessory to a single-family dwelling (see EMC 14.30.080(C), Figure 14.30-3). Both review procedures require the completion of a site evaluation as follows:~~

~~1. Wetland Certification Process for Single-Family Dwellings (No Encroachment into a Regulated Wetland or Its Standard Buffer):~~

~~a. Prior to issuance of a building permit, site development permit, or on-site sewage system permit, the applicant shall submit a single-family wetland certification form completed by a wetland specialist that certifies either:~~

~~i. No regulated wetlands are present within 165 feet of the project area; or~~

~~ii. Wetlands are present within 165 feet of the project area, but all regulated activities associated with the dwelling (i.e., landscaped areas, septic facilities, outbuildings, etc.) will occur outside of the standard buffer of the identified wetland.~~

~~b. If regulated wetland buffers extend onto the site, the wetland specialist shall place permanent, clearly visible, wetland buffer signs at the edge of the buffer. A wetland buffer sign affidavit, signed by the wetland~~

specialist, shall be submitted to the department as verification that the wetland buffer signs have been placed on the site.

~~c. A survey as outlined in EMC 14.10.080(H) will not be required.~~

~~d. The single-family certification form may be used only to authorize single-family dwellings and associated homesite features such as driveways, gardens, fences, wells, lawns, and on-site septic systems. It may not be used for new agricultural activities, expansion of existing agricultural activities, forest practice activities, commercial projects, land divisions, buffer width modifications (as set forth in EMC 14.30.060), or violations.~~

~~e. The single-family certification process will be monitored by the department for accuracy, and enforcement actions will be initiated should encroachment into a regulated wetland or buffer occur.~~

~~f. The applicant/property owner assumes responsibility for any and all errors of the single-family certification form and all associated mitigation imposed by the department.~~

~~g. Single-family certification forms shall be filed with the Pierce County auditor's office in accordance with EMC 14.10.070(F) and 14.10.110(B).~~

~~2. Single-Family Wetland Application Process (Encroachment into the Standard Buffer of a Regulated Wetland).~~

~~a. A wetland application and wetland delineation report shall be submitted to the department when the single-family dwelling and associ-~~

~~ated homesite features are located within the standard buffer of a regulated wetland.~~

~~b. The applicant may retain either a wetland specialist or department staff to delineate the limits of a regulated wetland and determine the impacts associated with the project, subject to the following:~~

~~i. A wetland delineation report, as defined in subsection (C)(3) of this section, shall be submitted to the department for review; or~~

~~ii. Upon the applicant's request and payment of fees, the department shall delineate the regulated wetland(s).~~

~~c. If the department determines that mitigation is necessary to offset the identified impacts, the applicant shall comply with the mitigation requirements set forth in EMC 14.30.050.~~

~~d. The applicant shall place permanent, clearly visible, wetland boundary buffer signs at the edge of the buffer.~~

~~e. A survey as defined in EMC 14.10.080(H) will not be required.~~

~~3. Wetland Delineation Report. The wetland delineation report shall include data sheets; scaled site maps showing the project boundary, wetland boundary, categorization of the wetland and standard buffer boundary, boundary flag location and sample plot location and designation; a vicinity map with driving instructions; and any other field data and information necessary for the department to confirm wetland presence, location, and category.~~

~~D. Agricultural Activity Wetland Review. A wetland application and wetland delineation report shall be submitted to the department when the site evaluation indicates that a regulated wetland or its standard buffer extends into a site proposed for an agricultural activity.~~

~~1. The applicant may either retain a wetland specialist or department staff to delineate the limits of a regulated wetland and determine the impacts associated with the project area, subject to the following:~~

~~a. A wetland delineation report, as defined in subsection (C)(3) of this section, shall be submitted to the department for review; or~~

~~b. Upon the applicant's request and payment of fees, the department shall delineate the regulated wetland(s).~~

~~2. If the department determines that mitigation is necessary to offset the identified impacts, the applicant shall comply with the mitigation requirements set forth in EMC 14.30.050.~~

~~3. The applicant shall place permanent, clearly visible, wetland boundary buffer signs at the edge of the buffer.~~

~~4. A survey as defined in EMC 14.10.080(H) will not be required.~~

~~5. Agricultural activities may be initiated subject to compliance with the requirements set forth in subsections (D)(1) through (4) of this section and the submittal of a best management plan developed by the Pierce County Conservation District or Natural Resource Conservation Service (NRCS).~~

~~E. Forest Practice Wetland Review.~~

~~1. All forest practice activities that are not exempt from the provision of this title shall be reviewed pursuant to the criteria set forth in subsection (B) of this section, General Wetland Review, except for conversion option harvest plan (COHP).~~

~~2. An abbreviated wetland review process may be used for COHPs as follows:~~

~~a. If a regulated wetland or its standard buffer extends onto the site, the department shall require the submittal of a wetland application and delineation report. At a minimum the report shall include:~~

~~i. A detailed description of all wetlands on, or within, 165 feet of the site, including the wetland(s) approximate size, vegetation, categorization, and hydrology source(s).~~

~~ii. Sample data sheets for each wetland.~~

~~iii. An accurate map delineating the boundaries of the wetland(s) and standard buffer(s) in relation to the boundaries of the site.~~

~~b. The wetland delineation report shall be prepared, signed, and dated by a wetland specialist.~~

~~c. The accuracy of the wetland delineation, flagging, and categorization shall be field verified by the department.~~

~~d. A survey as defined in EMC 14.10.080(H) will not be required.~~

~~3. Where an application for a development permit, other than a site development permit, has not been submitted in association with a proposed forest practice activity a deviation, from the standard wetland buffer, as set forth in EMC 14.30.060(A), shall not be allowed. (Ord. 02-200 § 2).~~

14.30.040 Wetland standards/Allowed activities.

A. The following wetlands are exempt from the requirement to avoid impacts in EMC 14.10.080(J) and may be altered if the impacts are fully mitigated based on the remaining mitigation sequencing actions in EMC 14.10.080(J). In order to verify the following conditions, a wetland critical areas report meeting the requirements of EMC 14.30.070, Appendix A must be submitted.

1. All isolated Category IV wetlands less than 4,000 square feet that:
 - a. Are not associated with riparian areas or their buffers;
 - b. Are not part of a wetland mosaic;
 - c. Do not score 5 or more points for habitat functions based on current version of the Washington State Wetland Rating System for Western Washington (Ecology, 2014).
 - d. Do not contain a Priority Habitat or a Priority Area for a Priority Species identified by the Washington Department of Fish and Wildlife, federally listed species or their critical habitat, or habitats or species of local importance as identified in EMC 14.40.030(A).
2. Wetlands less than 1,000 square feet that meet the criteria specified in subsection (A)(1) of this section.
3. Utility projects within wetland buffers which have minor or short-duration impacts, as determined by the department in accordance with the criteria below, and which do not significantly impact the function or values of wetlands; provided, that such projects are constructed with best management practices and additional restoration measures are provided. Minor activities shall not result in the transport of sediment or increased stormwater. Such allowed minor utility projects shall meet the following criteria:
 - a. There is no practical alternative to the proposed activity with less impact on wetlands;
 - b. The activity involves the placement of a utility pole, street signs, anchor, or vault or other small component of a utility facility; and
 - c. The activity involves disturbance of an area less than 75 square feet.

AB. Regulated activities in wetlands and/or buffers may be allowed when the applicant demonstrates to the department that all adverse impacts to wetlands or associated buffers will be mitigated according to EMC 14.30.050. The activities listed below are allowed in wetlands and their buffers, and do not require submission of a critical area report, except where such activities would result in a loss of the functions and values of a wetland or wetland buffer. These activities include:

1. Activities in wetlands in areas managed according to a special area management plan or other plan adopted by the department and specifically designed to protect wetland resources.

B. The following activities may be allowed in a buffer without a complete mitigation plan if the applicant demonstrates to the department that all adverse impacts to wetlands will be mitigated according to the provisions in EMC 14.30.050. In cases that require environmental review, a threshold environmental determination may not be made until the department is satisfied that adequate mitigation will occur. The allowed activities are as follows:

1. One well and necessary appurtenances, including a pump and appropriately sized pump house, but not including a water storage tank (unless the water storage tank can be contained within the pump house), subject to the following conditions:
 - a. The pump house is a one-story building with a ground area of less than 120 square feet; and
 - b. The well is more than 75 feet deep; and
 - c. For Category I and II wetlands, the minimum distance from the well and appurtenances to the wetland edge is no less than 50 percent of the buffer widths established in the table in EMC 14.30.060(A); and
 - d. Access to the well and pump house shall be by a pervious trail for pedestrian traffic only or, if necessary, by an unimproved access for a maintenance vehicle.
2. Pervious trails and associated viewing platforms.
3. The placement of utility lines which do not require excavation or utility pole installation in any part of a buffer for a Category II, III, or IV wetland. They may be placed in a buffer for a Category I wetland; provided, that the

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minimum distance from the wetland edge is no less than 50 percent of the Category I buffer width established in the table in EMC 14.30.060(A).

4. New farm and agricultural activities may be permitted within a buffer subject to the following:

- a. Agricultural activities and structures shall comply with the provisions of Chapter 14.70 EMC, Flood Hazard Areas.
- b. The agricultural activity is in compliance with the USDA, NRCS Conservation Reserve Program farm management standards.
- c. A copy of an approved NRCS or Pierce County Conservation District farm management plan that documents compliance with the USDA, NRCS Conservation Reserve Program farm management standards has been submitted to the department for review and approval.

2E. Trimming of vegetation for purposes of providing view corridors will be allowed; provided, that trimming shall be limited to view corridors of a maximum 20-foot width and that benefit to fish and wildlife habitat are not reduced. Trimming shall be limited to hand pruning of branches and vegetation. Trimming shall not include felling, topping, or removal of trees. (Ord. 02-200 § 2).

3. Drilling for utilities/utility corridors under a wetland, with entrance/exit portal located completely outside of the wetland buffer, provided that the drilling does not interrupt the ground water connection to the wetland or percolation of surface water down through the soil column. Specified studies by a hydrologist are necessary to determine whether the ground water connection to the wetland or percolation of surface water down through the soil column will be disturbed.

14.30.050 Buffer requirements standards – Wetlands.

A. Determining Buffer widths. Buffer widths shall be measured horizontally from the perpendicular line established at the wetland edge as shown in Table 14.20.050(1).

Table 14.30.050(1)
Buffer Requirements Standards - Wetlands

Wetland Category	Buffer Width (Wetlands scores 3-4 habitat points)	Buffer Width (Wetland scores 5 habitat points)	Buffer Width (Wetland scores 6-7 habitat points)	Buffer Width (Wetland scores 8-9 habitat points)
Category I: Based on total score	75 ft.	105 ft.	165 ft.	225 ft.
Category I: Bogs and Wetlands of High Conservation Value	190 ft.	190 ft.	190 ft.	225 ft.
Category I: Forested	75 ft.	105 ft.	165 ft.	225 ft.
Category II (all)	75 ft.	105 ft.	165 ft.	225 ft.
Category III (all)	60 ft.	105 ft.	165 ft.	225 ft.
Category IV (all)	40 ft.	40 ft.	40 ft.	40 ft.

B. Required Measures to Minimize Impacts to Wetlands. Measures to minimize the impacts of the land use adjacent to wetlands shall be applied, as shown in Table 14.20.050(2).

The Edgewood Municipal Code is current through Ordinance 17-498, passed April 11, 2017.

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Table 14.30.050(2)
Wetland Impact Minimization Measures

Disturbance	Required Measures to Minimize Impacts
<u>Lights</u>	• <u>Direct lights away from wetland</u>
<u>Noise</u>	• <u>Locate activity that generates noise away from wetland</u> • <u>For activities that generate relatively continuous, potentially disruptive noise, such as certain heavy industry or mining, establish an additional 10-foot heavily vegetated buffer strip immediately adjacent to the outer wetland buffer</u>
<u>Toxic runoff</u>	• <u>Route all new, untreated runoff away from wetland while ensuring wetland is not dewatered</u> • <u>Establish covenants limiting use of pesticides within 150 feet of wetlands</u> • <u>Apply integrated pest management</u>
<u>Stormwater runoff</u>	• <u>Retrofit stormwater detention and treatment for roads and existing adjacent development</u> • <u>Prevent channelized flow from lawns that directly enters the buffer</u> • <u>Use Low Impact Development techniques</u>
<u>Change in water regime</u>	• <u>Infiltrate or treat, detain, and disperse into buffer new runoff from impervious surfaces and new lawns</u>
<u>Pets and human disturbance</u>	• <u>Use privacy fencing OR plant dense vegetation to delineate buffer edge and to discourage disturbance using vegetation appropriate for the ecoregion</u> • <u>Place wetland and its buffer in a separate tract or protect with a conservation easement</u>
<u>Dust</u>	• <u>Use best management practices to control dust</u>

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C. Modification of Buffer Widths. The standard buffer widths of subsection (A) of this section may be modified by averaging, reducing, or increasing.

1. Buffer Averaging. Buffer width averaging may be allowed only where the applicant demonstrates all of the following:

- a. Buffer encroachment is unavoidable.
- b. The wetland contains variations in sensitivity due to existing physical characteristics.
- c. Width averaging will provide equal or greater protection of current wetland functions and values.
- f. The total buffer area after averaging is no less than the buffer area prior to averaging.
- g. The minimum width of the buffer at any given point shall be at least seventy-five percent (75%) of the standard width, or twenty-five (25) feet, whichever is greater.
- h. The averaging is accomplished within the project boundaries.

The Edgewood Municipal Code is current through Ordinance 17-498, passed April 11, 2017.

2. Buffer Width Reductions. Buffer width reduction to a maximum of twenty-five (25) percent may be allowed when the applicant demonstrates the following circumstances:

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- a. Buffer encroachment is unavoidable.
- b. The existing buffer is predominately un-vegetated, composed of nuisance species, or is in an otherwise highly disturbed condition.
- c. The project includes a buffer enhancement plan as part of the mitigation required by EMC 14.30.060. The buffer enhancement plan shall use plant species which are native, noninvasive to the project area.
- d. Buffer reduction with enhancement will provide equal or greater protection of current wetland functions and values.

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3. Buffer Increases. The department may require increased buffer width(s) when any of the following are identified:

- a. A larger buffer is necessary to maintain viable populations of existing species;
- b. The wetland is used by, or associated with, species listed by the federal government or the state as endangered, threatened, sensitive, or as documented priority species or habitats, or essential or outstanding potential sites such as heron rookeries or raptor nesting areas;
- c. The adjacent land is susceptible to severe erosion and erosion control measures will not effectively prevent adverse wetland impacts;
- d. The adjacent land has minimal vegetative cover, or slopes greater than 20 percent. (Ord. 02-200 § 2).

14.30.0650 Mitigation requirements.

A. Mitigation. All regulated development activities in wetlands or buffers shall be mitigated according to this title subject to the following criteria:

- 1. Avoiding the impact altogether by not taking a certain action or parts of actions;
- 2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation by using appropriate technology or by taking affirmative steps to reduce impacts;
- 3. The following types of mitigation (no order of preference):
 - a. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
 - b. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action;
 - c. Compensating for the impact by replacing or providing substitute resources or environments;
- 4. Monitoring the impact and compensation and taking appropriate corrective measures; and
- 5. Mitigation for individual actions may include a combination of the above measures.

A. Mitigation. Compensatory mitigation is required for all unavoidable alterations to wetlands or their buffers, except for buffer averaging when done in accordance with EMC 14.30.050(C)(1). Compensatory mitigation actions shall replace functions affected by the alteration and shall provide equal or greater functions compared to the impacted wetland.

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B. Preference of Mitigation Actions. Compensatory wetland mitigation shall occur in the following order of preference:

1. Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural or historic functions to a former or degraded wetland. For the purpose of tracking net gains in wetland acres, restoration is divided into:

a. Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural or historic functions to a former wetland. Re-establishment results in a gain in wetland acres (and functions). Activities could include removing fill material, plugging ditches, or breaking drain tiles.

b. Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural or historic functions of a degraded wetland. Rehabilitation results in a gain in wetland function but does not result in a gain in wetland acres. Activities could involve breaching a dike to reconnect wetlands to a floodplain or return tidal influence to a wetland

2. Creation: The manipulation of the physical, chemical, or biological characteristics of a site to develop a wetland on an upland or deepwater site where a wetland did not previously exist. Creation results in a gain in wetland acres. Activities typically involve excavation of upland soils to elevations that will produce a wetland hydroperiod, create hydric soils, and support the growth of hydrophytic plant species.

3. Enhancement: The manipulation of the physical, chemical, or biological characteristics of a wetland site to heighten, intensify, or improve specific function(s) or to change the growth stage or composition of the vegetation present. Enhancement is undertaken for specified purposes such as water quality improvement, flood water retention, or wildlife habitat. Enhancement results in a change in some wetland functions and can lead to a decline in other wetland functions, but does not result in a gain in wetland acres. Activities typically consist of planting vegetation, controlling non-native or invasive species, modifying site elevations or the proportion of open water to influence hydroperiods, or some combination of these activities

C. Approaches to Compensatory Mitigation. Mitigation for alterations to wetland and their buffers shall rely on the approaches listed below.

1. Wetland Mitigation Banks. Credits from a certified wetland mitigation bank may be used to compensate for impacts within the service area specified in the mitigation bank instrument. Use of credits from a wetland mitigation bank certified under Chapter 173-700 WAC is allowed if:

a. The department determines that it would provide appropriate compensation for the proposed impacts; and

b. The impact site is located in the service area of the bank.

c. The proposed use of credits is consistent with the terms and conditions of the certified bank instrument.

d. Replacement ratios for projects using bank credits is consistent with replacement ratios specified in the certified mitigation bank instrument.

2. In-Lieu Fee Mitigation. Credits from an approved in-lieu-fee program may be used when all the following apply:

a. The approval authority determines that it would provide environmentally appropriate compensation for the proposed impacts.

b. The proposed use of credits is consistent with the terms and conditions of the approved in-lieu-fee program instrument.

c. Project using in-lieu-fee credits shall have debits associated with the proposed impacts calculated by the applicant's qualified wetland scientist using the credit assessment method specified in the approved instrument for the in-lieu-fee program.

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d. The impacts are located within the service area specified in the approved in-lieu-fee instrument.

3. Permittee-responsible mitigation. In this situation, the permittee performs the mitigation after the permit is issued and is ultimately responsible for implementation and success of the mitigation. Permittee-responsible mitigation may occur at the site of the permitted impacts or at an off-site location within the same watershed. If available, the use of wetland mitigation banks and in-lieu-fee programs are preferable to permittee-responsible mitigation.

D. Wetland mitigation ratios. The ratios listed in Table 14.30.060 apply to permittee-responsible mitigation. The first number specifies the acreage of replacement wetlands required, and the second number specifies the acreage of wetlands altered or relocated.

Table 14.30.060
Wetland Impact Minimization Measures

<u>Category and Type of Wetland</u>	<u>Creation or Re-establishment</u>	<u>Rehabilitation</u>	<u>Enhancement</u>
Category I: High conservation value/bog	Not considered possible	Not considered possible	Not considered possible
Category I: Mature and old growth forest	6:1	12:1	24:1
Category I: Based on functions	4:1	8:1	16:1
Category II	3:1	6:1	12:1
Category III	2:1	4:1	8:1
Category IV	1.5:1	3:1	6:1

The director may increase the ratios under the following circumstances:

1. Uncertainty as to the probable success of the proposed restoration or creation;
2. Significant period of time between destruction and replication of wetland values;
3. Projected losses in functional value;
4. The compensatory mitigation is off site.

E. Wetland buffer mitigation. To mitigate unavoidable impacts to functions and values of wetland buffers, a minimum buffer ratio of 1:1 (alteration area: mitigation area) is required. This ratio assumes that creation/restoration of a wetland buffer with appropriate native vegetation is sufficient to compensate for the wetland buffer functions and values affected by alteration of an existing wetland buffer. If enhancement of an existing wetland buffer is proposed as mitigation, a higher mitigation ratio may be required. For any proposed wetland buffer activities, the applicant must demonstrate that the functions and values of the altered wetland buffer will be fully replaced by the proposed mitigation. The department may increase the buffer mitigation ratios under the following circumstances:

1. The replacement ratio needed to recover the lost functions and values of buffer area is greater than 1:1 based upon the existing type of vegetative cover of either the impact site or the proposed mitigation site.

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2. Uncertainty exists as to the probable success of the proposed restoration or creation;

3. A significant period of time will elapse between impact and replication of wetland functions;

4. The impact was an unauthorized impact.

F. Wetland and buffer mitigation plans. Compensatory wetland mitigation plans shall be consistent with Wetland Mitigation in Washington State – Part 2: Developing Mitigation Plans (Ecology, 2006); and Selecting Wetland Mitigation Sites Using a Watershed Approach (Ecology, 2009), or as revised. Mitigation plans shall comply with the requirements established in EMC 14.30.070, Appendix B.

B. Mitigation for Regulated Activities in Wetland Buffers. Noncompensatory mitigation shall be required for all regulated activities in buffers. Specific mitigation plan requirements are provided in EMC 14.30.070, Appendix C. Where environmental review is required, a threshold determination may not be made until the department has reviewed and approved the noncompensatory mitigation plan.

C. Mitigation for Regulated Activities in Wetlands. Compensatory mitigation shall be required for regulated activities that result in the loss of wetland acreage. Noncompensatory mitigation shall be required for regulated activities that do not result in the loss of wetland acreage. Specific mitigation plan requirements are provided in EMC 14.30.070, Appendices D and E.

1. The compensatory mitigation plan shall be completed in two phases, a conceptual phase and a detailed phase.

a. Conceptual Phase. The applicant shall submit a conceptual mitigation plan for compensatory mitigation to the department. Where environmental review is required, the department shall not make a threshold determination prior to department review and approval of the conceptual mitigation plan. See EMC 14.30.070, Appendix D, for specific requirements of the conceptual mitigation plan.

b. Detailed Phase. Following the department's approval of the conceptual mitigation plan, the applicant shall submit a detailed mitigation plan for compensatory mitigation to the department. See EMC 14.30.070, Appendix E, for specific requirements of the detailed mitigation plan.

2. The detailed mitigation plan shall be prepared, signed, and dated by the wetland specialist to indicate that the plan is in accordance with specifications determined by the wetland specialist. A signed original mitigation plan shall be submitted to the department.

3. Approval of the detailed mitigation plan shall be signified by a notarized memorandum of agreement signed by the applicant and director, and recorded with the Pierce County auditor. The agreement shall refer to all requirements for the mitigation project.

4. The mitigation project shall be completed according to a schedule agreed upon between the department and the applicant.

5. Wetland mitigation shall occur according to the approved wetland mitigation plan and shall be consistent with provisions of this chapter and title.

6. The wetland specialist shall be on-site during construction and plant installation phases of all mitigation projects.

7. On completion of construction for the wetland mitigation project, the wetland specialist shall submit an as-built report to the department for review and approval.

D. Mitigation Banking. (Reserved). (Ord. 02-200 § 2).

14.30.060 — Buffer requirements.

A. Determining Buffer Widths. Buffer widths shall be measured horizontally from the perpendicular line established at the wetland edge based on the following table:

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Wetland Category	Standard Buffer Width
I	150 feet
II	100 feet
III	50 feet
IV	25 feet

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B. Modification of Buffer Widths. The standard buffer widths of subsection (A) of this section may be modified by averaging, reducing, or increasing.

1. Buffer Averaging. Buffer width averaging may be allowed only where the applicant demonstrates all of the following:

- a. Buffer encroachment is unavoidable.
- b. A habitat assessment has been submitted which demonstrates that no documented habitat for endangered, threatened, or sensitive plant, fish, or animal species, or for potentially extirpated plant species recognized by state or federal agencies exists; or
- c. For wetlands and/or required buffers associated with documented habitat for endangered, threatened, or sensitive plant, fish, or wildlife species, or for potentially extirpated plant species recognized by state or federal agencies, a habitat assessment report has been submitted that demonstrates that the buffer reduction will not result in an adverse impact to the species of study.
- d. The wetland contains variations in sensitivity due to existing physical characteristics.
- e. Width averaging will not adversely impact the wetland or critical fish or wildlife habitat.
- f. The total buffer area after averaging is no less than the buffer area prior to averaging (see EMC 14.30.080(D), Figure 14.30-4).
- g. The minimum buffer width will not be less than 50 percent of the widths established in subsection (A) of this section.
- h. The averaging is accomplished within the project boundaries.

2. Buffer Width Reductions. Buffer width reduction to a maximum of 25 percent may be allowed when the applicant demonstrates the following circumstances:

- a. Buffer encroachment is unavoidable; and
- b. A habitat assessment has been submitted which demonstrates that no documented habitat for endangered, threatened, or sensitive plant, fish, or animal species, or for potentially extirpated plant species recognized by state or federal agencies exists; or
- c. A habitat assessment report has been submitted that demonstrates that the buffer reduction will not result in an adverse impact to the species of study for wetlands and/or required buffers associated with documented habitat for endangered, threatened, or sensitive plant, fish or wildlife species or for potentially extirpated plant species recognized by state or federal agencies; and
- d. The applicant demonstrates one or more of the following conditions:
 - i. The proposed buffer area is extensively vegetated, has less than 20 percent slopes, and the reduction will not result in adverse impacts to the wetland; or

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ii. ~~The project includes a buffer enhancement plan as part of the mitigation required by EMC 14.30.050. The buffer enhancement plan shall use plant species which are native, noninvasive to the project area and shall substantiate that an enhanced buffer will improve the functional attributes of the buffer to provide additional protection for wetland functional values; or~~

iii. ~~The acreage included in the buffer would substantially exceed the size of the wetland and the reduction will not result in adverse impacts to the wetland.~~

3. ~~Buffer Increases. The department may require increased buffer width(s) when any of the following are identified:~~

~~a. A larger buffer is necessary to maintain viable populations of existing species;~~

~~b. The wetland is used by, or associated with, species listed by the federal government or the state as endangered, threatened, sensitive, or as documented priority species or habitats, or essential or outstanding potential sites such as heron rookeries or raptor nesting areas;~~

~~c. The adjacent land is susceptible to severe erosion and erosion control measures will not effectively prevent adverse wetland impacts;~~

~~d. The adjacent land has minimal vegetative cover, or slopes greater than 20 percent. (Ord. 02-200 § 2).~~

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14.30.070 Appendices.

A. Wetland Report.

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B. Wetland Mitigation Plan

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APPENDIX A

WETLAND REPORT

A. A wetland critical areas report shall, at a minimum, include the following:

1. The general critical areas report requirements in EMC 14.20.060;
2. Map showing the location of all wetlands and required buffers within three hundred (300) feet of the proposed development;
3. An analysis of the onsite wetland(s) include the following site- and proposal-related information:
 - a. Documentation of any fieldwork performed on the site, including, but not limited to, field delineation data sheets for delineations and wetland rating forms;
 - b. Wetland acreage;
 - c. Wetland category;
 - d. A discussion of the water sources supplying the wetland and documentation of hydrologic regime (locations of inlet and outlet features, water depths throughout the wetland, evidence of recharge or discharge);
 - e. A discussion of the functions of existing wetlands, including vegetative, faunal, and hydrologic conditions; and
 - f. A description of the methodologies used to conduct the wetland delineations;
4. A discussion of measures, including avoidance, minimization, and mitigation, proposed to preserve existing wetlands;

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5. A detailed discussion of the direct and/or indirect potential impacts on the wetland by the project; and
6. The wetland mitigation plan requirements of EMC 14.30.070, Appendix B, if the activity will result in unavoidable impacts to wetlands or their buffers.

APPENDIX B

WETLAND MITIGATION PLAN

A. A wetland mitigation plan shall, at a minimum, include the following:

1. The general mitigation plan requirements in EMC 14.20.070 and the following information:
2. Existing and proposed wetland acreage;
3. Vegetative and faunal conditions;
4. Surface and subsurface hydrologic conditions including an analysis of existing and future hydrologic regime and proposed hydrologic regime for enhanced, created, or restored mitigation areas;
5. Relationship within watershed and to existing waterbodies;
6. Soils and substrate conditions, topographic elevations;
7. Existing and proposed adjacent site conditions;
8. Required wetland buffers (including any buffer reduction or averaging and mitigation proposed to enhance buffers);
9. Property ownership;
10. A discussion of ongoing management practices that will protect wetlands after the project site has been developed, including proposed monitoring and maintenance programs;
10. A bond estimate for the installation (including site preparation, plant materials and installation, fertilizers, mulch) and the proposed monitoring and maintenance work for the required number of years, pursuant to EMC 14.10.080(B).

A. Wetland Categories.

B. Information to Be Included in a Wetland Analysis Report.

C. Mitigation Plan for Regulated Activities in Buffers.

D. Compensatory Mitigation Plan for Regulated Activities in Wetlands, Conceptual Phase.

E. Compensatory Mitigation Plan for Regulated Activities in Wetlands, Detailed Phase.

F. Edgewood Wetlands Rating Form.

APPENDIX A

WETLAND CATEGORIES

Wetland categories shall be designated according to the following generalized criteria:

A. Category I- Wetlands that contain any of the following:

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1. Documented habitat for endangered or threatened plant, fish, or animal species or for potentially extirpated plant species recognized by state or federal agencies;
2. Wetlands associated with documented habitat for endangered, threatened, sensitive plant, fish, or animal species or for potentially extirpated plant species recognized by state or federal agencies;
3. High quality native wetland communities, including documented natural heritage wetland sites and sites which qualify as a natural heritage wetland;
4. High quality, regionally rare wetland communities with irreplaceable ecological functions, including sphagnum bogs and fens, estuarine wetlands, mature forested wetlands, or snag-rich areas;
5. Wetlands of exceptional local significance, as designated by separate Edgewood ordinance.

B. Category II. Regulated wetlands that do not contain features outlined in Category I with any of the following:

1. Documented habitats for sensitive plants or fish species recognized by federal or state agencies;
2. Documented priority habitats and species recognized by state agencies;
3. Regionally rare wetland communities which are not high quality, but which have irreplaceable ecological functions, including sphagnum bogs and fens, estuarine wetlands, or mature forested wetlands;
4. Wetland types with significant functions which may not be adequately replicated through creation or restoration. These wetlands may be demonstrated by any of the following characteristics:
 - a. Peat or muck systems;
 - b. Forested wetlands that have three canopy layers; or
 - c. Significant spring-fed systems;
5. Wetlands with significant habitat value based on diversity and size including wetlands:
 - a. Ten acres or greater in size with two or more wetland classes together with an open water class at any time during a normal year;
 - b. Ten acres or greater in size, with three or more wetland classes and five or more subclasses of vegetation in a dispersed pattern;
 - c. Five acres or greater in size, with 40 to 60 percent open water at any time during a normal year, and two or more subclasses of vegetation in a dispersed pattern;
6. Regulated wetlands that are associated with either year-round or intermittent salmonid fishbearing waters;
7. Wetlands with significant use by fish and wildlife.

C. Category III. Regulated wetlands that do not contain features outlined in Category I, II, or IV wetlands that are not part of a mosaic wetland.

D. Category IV. Regulated wetlands that do not meet the criteria of a Category I, II, or III wetland that are:

1. Hydrologically isolated;
2. Less than or equal to one acre in size;
3. Have only one wetland class and one dominant plant species (i.e., displaying monotypic vegetation); and
4. Not part of a mosaic wetland.

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~~E. The category of a wetland shall not be changed to recognize illegal modifications to the wetland.~~

~~APPENDIX B~~

~~INFORMATION TO BE INCLUDED IN A WETLAND ANALYSIS REPORT~~

~~A wetland analysis report shall include the following:~~

~~A. Vicinity map and detailed driving instructions to the site;~~

~~B. A site map setting forth all of the following:~~

- ~~1. Surveyed wetland boundaries based upon a delineation by a wetlands specialist;~~
- ~~2. Wetlands and buffers off site, within 165 feet of the site boundaries, are also to be discussed and shown in as much detail as possible;~~
- ~~3. Site boundary property lines and roads;~~
- ~~4. A north arrow and scale;~~
- ~~5. Internal property lines, rights-of-way, easements, etc.;~~
- ~~6. Existing physical features of the site including buildings, fences, and other structures, roads, parking lots, utilities, water bodies, etc.;~~
- ~~7. Contours at the smallest readily available intervals, preferably at two-foot intervals;~~
- ~~8. Hydrologic mapping showing patterns of surface water movement and known subsurface water movement into, through, and out of the site area; and~~
- ~~9. Location of all test holes and vegetation sample sites, and wetland boundary flags numbered to correspond with flagging in the field and field data sheets;~~

~~C. A report which includes the following:~~

- ~~1. Location information (legal description, parcel number, and address);~~
- ~~2. Delineation analysis results. The wetland boundaries on the site established by the delineation shall be staked and flagged in the field. If the wetland extends outside the site, the delineation report shall discuss all wetland areas within 150 feet of the site, but need only delineate those wetland boundaries within the site;~~
- ~~3. General site conditions including topography, acreage, and surface areas of all wetlands identified in the city's wetland atlas and water bodies within one-quarter mile of the subject wetland(s);~~
- ~~4. Hydrological analysis, including topography of existing surface and known significant sub-surface flows into and out of the subject wetland(s); and~~
- ~~5. Discussion of the values of existing wetlands, including vegetative, faunal, and hydrologic conditions and the presence of threatened, endangered, candidate, sensitive or monitor species;~~

~~D. A summary of the proposed activity and potential direct or indirect impacts to the wetland(s) including stormwater-related impacts to wetland hydrology;~~

~~E. Recommended wetland category, including rationale for the recommendation;~~

~~F. Recommended buffer boundaries, including rationale for boundary locations;~~

~~G. Proposed on-site residential density transfer from wetlands and/or buffers to upland areas;~~

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~~H. Site plan of proposed activity, including location of all parcels, tracts, easements, roads, structures, and other modifications to the existing site. The location of all wetlands and buffers shall be identified on the site plan;~~

~~I. The wetland analysis report shall be signed and dated by the wetlands specialist.~~

APPENDIX C

MITIGATION PLAN FOR REGULATED ACTIVITIES IN BUFFERS

~~A. A mitigation plan for regulated activities in buffers shall be prepared, signed, and dated by a wetlands specialist and shall contain the following:~~

- ~~1. General goals of the mitigation plan including a discussion of the function and values of impact and enhancement areas;~~
- ~~2. Approximated site topography before and after alteration;~~
- ~~3. Location of proposed mitigation area (include a north arrow and scale);~~
- ~~4. General hydrologic patterns on the site before and after construction;~~
- ~~5. General plant selection and justification, planting instructions, and approximate planting sequencing and schedule;~~
- ~~6. A maintenance plan;~~
- ~~7. A monitoring and contingency plan. Monitoring is to occur for a minimum of five years;~~
- ~~8. Estimated costs for the installation, maintenance, and monitoring phases of the project. Separate estimates shall be prepared for the installation phase and monitoring and maintenance phase of the project; and~~
- ~~9. Address and phone number of person(s) or organization(s) responsible for the monitoring requirements.~~

~~B. Upon department review and approval of this plan, it shall become the detailed plan.~~

~~C. Where environmental review is required, a threshold determination may not be made prior to submittal of a plan which meets department approval.~~

APPENDIX D

COMPENSATORY MITIGATION PLAN FOR REGULATED ACTIVITIES IN WETLANDS—CONCEPTUAL PHASE

~~A. The conceptual phase of a mitigation plan for regulated activities in wetlands shall be prepared, signed, and dated by a wetland specialist and shall include the following:~~

- ~~1. General goals of the compensatory mitigation plan, including an overall goal of no net loss of wetland function, value, and acreage;~~
- ~~2. Mitigation projects that involve Category I wetlands associated with documented habitat for endangered or threatened plant, fish, or animal species or for potentially extirpated plant species recognized by state or federal agencies must also demonstrate a net benefit to the conservation of the affected species;~~
- ~~3. Site topography before and after construction;~~
- ~~4. Location of proposed wetland mitigation area;~~
- ~~5. General hydrologic patterns on the site before and after construction;~~

6. Field data confirming the presence of adequate hydrology to support the existing and created wetland area(s). At a minimum, the following information shall be included:

- a. Seasonal (growing season) water level;
- b. Sources of water (if the water source is adjacent to a stream or river then no instream structures will be allowed that restrict fish migration or access);
- c. Pre- and post-development inflow and outflow volumes and velocity and frequency of flooding;
- d. Groundwater and surface water table. (Guidelines for Developing Freshwater Wetlands Mitigation Plans and Proposals 1994, COE, EPA, DOE, USEWS, and WDFW);

7. Nature of mitigation, including wetland types (in-kind and out-of-kind), general plant selection and justification, approximate project sequencing and schedule, and approximate size of the new wetland buffer. A discussion of the function and values of both the impact and creation areas is also to be provided;

8. A conceptual maintenance plan; and

9. Conceptual monitoring and contingency plan.

B. Once the department approves the conceptual mitigation plan, a detailed mitigation plan shall be submitted. Due to the complex nature of creating and restoring wetlands, very detailed plans are needed (see EMC 14.30.070, Appendix E, for further information on detailed mitigation plans).

APPENDIX E

COMPENSATORY MITIGATION PLAN FOR REGULATED ACTIVITIES IN WETLANDS—DETAILED PHASE

Article I. Outline of Detailed Mitigation Plan

A. The detailed mitigation plan shall contain the following:

1. Site-specific, quantifiable criteria for evaluating whether or not the goals for the proposed compensation are being met. Such criteria shall include the establishment of viable plant communities, hydric soil formation, and establishment of wetland hydrology, and may include water quality standards, species abundance and diversity targets, habitat diversity indices, or other ecological, geological, or hydrological criteria (see Article III of this appendix for specific performance standards);

2. Pre-development analysis of the proposed compensation area including:

- a. Existing vegetation community analysis;
- b. Hydrological analysis that demonstrates the project will not adversely impact existing wetland and buffer areas and ensures adequate hydrology for any created wetland areas (see Article V for specific requirements);
- c. On-site soils analysis data and, where appropriate, Natural Resources Conservation Service mapping;
- d. Detailed description of flora and fauna existing on the site; and
- e. Description of existing site conditions in relation to historic conditions for those sites which have been recently altered or degraded.

3. Proposed post-development conditions within existing wetland and buffer areas and mitigation areas, including:

- a. Relationship of the project to the watershed and existing water bodies;

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- b. Topography, using one-foot contour intervals;
- c. Hydrologic analysis (see Article V of this appendix for specific requirements);
- d. Grading, filling, and excavation, including a description of imported soils;
- e. Irrigation requirements;
- f. Erosion control measures during construction; and
- g. Aerial coverage of planted areas to open water areas (if any open water is to be present).

4. Detailed site diagrams, to-scale construction drawings with cross-section data, topographic maps showing slope percentage and final grade elevations, and any other drawings appropriate to show construction techniques or anticipated final outcome. The plan shall provide for elevations which are appropriate for the desired habitat type(s). The construction drawings must include a note that requires the contractor to refer to the approved mitigation plan.

5. Planting plan prepared by a wetland specialist that shall include the following:

- a. Soils and substrate characteristics;
- b. Specification of substrate stockpiling techniques;
- c. Planting instructions, including species, stock type and size, density or spacing of plants, and water and nutrient requirements; and
- d. Specification of where plant materials will be procured. Documentation shall be provided which guarantees plant materials are to be procured from licensed regional nurseries or from wetlands on-site which are part of the mitigation plan.

6. Schedule showing dates for beginning and completing the mitigation project, including a sequence of construction activities.

7. Monitoring and maintenance plan which includes the following:

- a. Specification of procedures for monitoring and site maintenance; and
- b. Schedule for submitting monitoring reports.

8. Detailed contingency plan, consistent with Article IV of this appendix.

9. Detailed budget for implementing the mitigation plan, including construction, monitoring, maintenance, and contingency phases.

10. Financial guarantee for the work to be performed as planned and approved. Separate guarantee estimates shall be prepared for the installation phase and monitoring and maintenance phase of the project.

11. Address and phone number of the person or organization responsible for monitoring requirements.

Article II. Location Criteria

In cases in which it is determined that compensatory mitigation is appropriate, the following shall apply:

A. Compensatory mitigation shall be provided on-site, except where the applicant demonstrates that on-site mitigation is not scientifically feasible or practical due to physical features of the site.

B. When compensatory mitigation cannot be provided on-site, it shall be provided in the immediate vicinity of and within the same watershed as the regulated activity.

Article III. Mitigation Performance Standards

A. When regulated activities occur in wetlands, the applicant shall restore, create, or enhance equivalent areas of wetlands. Equivalent areas shall be determined according to acreage, functional value, type, location, time factors, and projected success. No overall net losses shall occur in wetland acreage, functions and/or values, and any restored, created, or enhanced wetland shall be as persistent as the wetland it replaces.

B. When an applicant proposes to alter or eliminate wetland, the applicant shall replace acreage at the following ratios:

Category I:	3:1 (acreage replacement: acreage lost)
Category II and III:	-
- Forested Class:	2:1
- Scrub/Shrub Class:	1.5:1
- Emergent Class:	1.5:1
- Open Water:	1:1
Category IV:	1:1

C. Ratios provided are for proposed projects with on-site, in-kind replacement which occurs prior to regulated activities on the site. The department may increase the ratios under the following circumstances:

1. Uncertainty as to the probable success of the proposed restoration or creation; or
2. Significant period of time between destruction and replication of wetland functions; or
3. Projected losses in wetland functions and value; or
4. Off-site and/or out-of-kind compensation.

D. The department may allow enhancement of existing or created wetland area(s) as a means of reducing the standard acreage replacement ratio if the applicant demonstrates that no net loss of wetland function or value will result; provided, that:

1. Enhancement mitigation ratios shall be no less than twice the standard creation ratio of the impacted wetland.
2. The applicant may be required to complete an analysis of the impact and mitigation areas in support of the acreage replacement ratio reduction. An example of an acceptable analysis methodology is the Washington State Department of Ecology Wetland Function Assessment Methodology (Ecology Publication # 99-116); however, other methodologies may be proposed.
3. The county will not allow the acreage replacement ratio to be reduced to less than 1:1 except as described in subsection (E) of Article III of this appendix.

E. In the case of Category II, III, and IV wetlands, the replacement ratio may be decreased to a ratio of less than 1:1 if, following a public hearing, the hearing examiner determines the following:

1. A replacement ratio of greater than 1:1 is either not feasible on-site or would be likely to result in substantial degradation of other natural features; and
2. The mitigation plan shows that a net increase in wetland functional values will result from the mitigation; and
3. The mitigation is completed, and then monitored by the department for one year prior to the issuance of permits. If after one year of monitoring, the department is not satisfied that the anticipated final outcome of the

~~mitigation plan will be met, modifications to the mitigation plan and further monitoring may be required. When the department is satisfied that the mitigation will be successful, permits pending will be issued.~~

F. ~~In-kind compensation shall be provided except where the applicant demonstrates that:~~

- ~~1. Greater functional and habitat values can be achieved through out-of-kind mitigation; and~~
- ~~2. The wetland system is already significantly degraded; or~~
- ~~3. Problems such as the presence of exotic vegetation and changes in watershed hydrology make implementation of in-kind compensation infeasible; or~~
- ~~4. Out-of-kind replacement will best meet identified regional goals (e.g., replacement of historically diminished wetland types).~~

G. ~~Design requirements for the mitigation plan shall, at a minimum, include the following:~~

- ~~1. Use only indigenous native plants (not introduced or exotic species);~~
- ~~2. Use plants appropriate to the depth of water at which they will be planted;~~
- ~~3. Use plants that originate and are available from local sources;~~
- ~~4. Use plant species high in food and cover value for fish and wildlife;~~
- ~~5. Plant mostly perennial species;~~
- ~~6. Avoid committing significant areas of site to species that have questionable potential for successful establishment;~~
- ~~7. Water depth is not to exceed 6.5 feet (two meters);~~
- ~~8. The grade or slope that water flows through the wetland is not to exceed six percent;~~
- ~~9. Slopes within the wetland and buffer should not be steeper than 3:1 (horizontal to vertical);~~
- ~~10. Planting densities and placement of plants shall be shown on the design plans;~~
- ~~11. The wetland should not contain more than 60 percent open water as measured at the seasonal high water mark;~~
- ~~12. Stockpiling shall be confined to upland areas and contract specifications should limit stockpile duration to less than four weeks. Erosion control measures shall be in effect at the stockpiling location;~~
- ~~13. Planting instructions shall describe proper placement, diversity, and spacing of seeds, tubers, bulbs, rhizomes, sprigs, plugs, cuttings, and transplanted stock;~~
- ~~14. Apply controlled release fertilizer at the time of planting and afterward only as plant conditions warrant (determined during the monitoring process), and only to the extent that the release would be conducted in an environmentally sound manner;~~
- ~~15. Install an irrigation system, as necessary, until plants are established.~~

H. ~~Mitigation projects are unique and performance standards will differ based upon the goals and objectives of the project. However, performance standards pertaining to water regime, vegetative structure and establishment, and hydric soil formation are to be established for all mitigation projects, as defined below:~~

- ~~1. The mitigation wetland must meet the technical criteria for wetland hydrology, seasonal inundation, and/or saturation to the surface for a consecutive number of days greater than or equal to 12.5 percent of the growing~~

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season. Areas that are seasonally inundated and/or saturated to the surface for a consecutive number of days between five percent and 12.5 percent of the growing season may also be wetlands. Hydrology may be monitored through the use of one or a combination of the following: groundwater wells, piezometers, crest gauges, hand-dug soil pits, staff gauges, and continuous recording flow meters.

2. At a minimum, vegetative success equals the establishment of a multi-species, mixed canopy community comprised of emergent, scrub shrub, and tree species. Yearly standards pertaining to survival and aerial coverage shall also be established for each vegetative stratum.

3. Hydric soil characteristics shall be monitored through the use of one or a combination of the following: Munsell soil color, pH, particle size, redox potential, organic content, microbial activity, time and duration of saturation or ponding, and alkalinity.

Article IV. Monitoring Program and Contingency Plan

A. A contingency plan shall be established for compensation in the event the mitigation project is inadequate or fails. The contingency plan is to provide specific corrective measures for such common mitigation plan failings as plant mortality, vandalism, damage due to wildlife grazing, grading errors, and hydro regime problems. A financial guarantee on a form acceptable to the city is required for the duration of the monitoring period and the guarantee plus any accrued interest will be released by the city when the required mitigation and monitoring are completed. To determine the amount of the financial guarantee, an estimate shall be submitted to the city detailing the work to be accomplished and the cost thereof. The estimate shall be based on current costs. The city will review the estimate and, if acceptable, will establish the financial guarantee at 125 percent of the estimate to allow for inflation and administration expenses should the city have to complete the project.

B. Requirements of the monitoring program are as follows:

1. Scientific procedures are to be used for establishing the success or failure of the project.
2. Monitoring reports prepared by a wetland specialist are to be submitted for department review. Monitoring reports shall include discussions of wildlife utilization of the site, vegetation establishment, water quality, water flow, stormwater storage and conveyance, and existing or potential degradation, according to the following schedule:
 - a. At completion of construction of mitigation project (as-built report);
 - b. Thirty days after completion;
 - c. Early in the first growing season after construction;
 - d. End of the first growing season after construction;
 - e. Twice the second year; and
 - f. Annually after the second year.
3. Monitor for a period of time appropriate to the nature of the project (single family versus commercial) and the complexity of the mitigation project. The majority of monitoring programs will last a minimum of five years.
4. The city will require a right of entry form be recorded that allows city staff access to the mitigation area through completion of the monitoring program.
5. Correct for failures in the mitigation project.
6. Replace dead or undesirable vegetation with appropriate plantings.
7. Repair damages caused by erosion, settling, or other geomorphological processes.

8. If necessary, redesign mitigation project and implement the new design.

9. Correction procedures shall be approved by a wetland specialist and the department director or designee.

Article V. Hydrology Monitoring Guidelines

A. Applicants are required to ensure that the proposed development does not result in adverse impacts to regulated wetland and/or buffers. To achieve this, an applicant must provide detailed hydrologic calculations, completed by a licensed civil engineer or hydrologist which shows the project will either:

1. Match the predevelopment contributing basin flow quantities and durations; or

2. That any identified changes will not adversely impact the wetland or wetland buffer.

B. The existing hydroperiod of the on-site wetland(s) shall be established through direct monitoring or computer estimation. Monitoring may be accomplished by the use of a continuous recording level gauge or a combination of a crest stage and staff gauge. Computer estimation may be either a time series model (for Category I and II wetlands) or a single event model (for Category III and IV wetlands).

C. Additional guidance in the design of a project's stormwater plan can be found in the Puget Sound Wetlands and Stormwater Management Research Program and in the "Wetland Hydrology Management Guidelines" included as Appendix A of the document entitled "Sensitive Areas Mitigation Guidelines" prepared by King County department of development and environmental services.

APPENDIX F

EDGEWOOD WETLANDS RATING FORM*

OFFICE DATA SECTION

Background Information:		
Name of Rater: _____ Affiliation: _____ Date: _____		
Application No./Case No.: _____ Project Name: _____		
Project Location: _____ Parcel No.(s): _____		
Property Owner Name: _____		
Property Owner Address: _____		
Location: _____ ¼ Section of _____ ¼ Section, of Section _____, Township _____, Range _____, W.M., Edgewood, WA		
SOURCE OF INFORMATION: (Check all sources that apply.)		
Site Visit: _____ USGS Topo Map: _____ NWI Map: _____ Aerial Photo: _____ Soil Survey: _____		
Edgewood Inventory: _____ Edgewood Drainage Map: _____ Other: _____		
When the Office and/or Field Data Forms are completed enter category here: _____		
ANSWER ALL QUESTIONS BELOW. If the source agency identifies the wetland as satisfying any of the questions below, circle the category in "CATEGORY" column.	DATA SOURCE	CATEGORY- (the highest qualifies)
Does the wetland contain federal or state listed threatened or endangered plant species; or, is the wetland a historic location of a plant species potentially extirpated from Washington?	DNR (Natural Heritage) U.S. Fish & Wildlife Service	Yes: Category I No: Next Question

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Is the wetland associated with documented habitat for endangered or threatened plant, fish, or animal species or for potentially extirpated plant species recognized by state or federal agencies?	Wash. Dept. of Wildlife Wash. Dept. of Fisheries U.S. Fish & Wildlife Service	Yes: Category I No: Next Question
Is the wetland already on record with the Washington Natural Heritage Program as a high quality native wetland?	DNR (Natural Heritage)	Yes: Category I No: Next Question
Is the wetland documented as a Category I Wetland of Local Significance? (None currently designated.)	Local Government	Yes: Category I No: Next Question
Does the wetland contain sensitive plant species recognized by federal or state agencies?	DNR (Natural Heritage) U.S. Fish & Wildlife Service	Yes: Category II No: Next Question
Does the wetland contain documented habitats of sensitive fish species recognized by federal or state agencies?	Wash. Dept. of Wildlife Wash. Dept. of Fisheries U.S. Fish & Wildlife Service	Yes: Category II No: Next Question
Does the wetland contain priority species or habitats documented by Washington Department of Wildlife's Priority Habitats and Species Program?	Wash. Dept. of Wildlife	Yes: Category II No: Next Question
Is the wetland documented as a Category II Wetland of Local Significance? (None currently designated.)	Local Government	Yes: Category II No: Go to Wetlands Rating Field Data Form
Is the wetland documented as a Category III Wetland of Local Significance? (None currently designated.)	Local Government	Yes: Category III No: Go to Wetlands Rating Field Data Form

*Adapted from Washington State Wetlands Rating System for Western Washington, Second Edition, August 1993 (publ. #93-74), developed by the Washington State Department of Ecology.

EDGEWOOD WETLANDS RATING FORM

FIELD DATA SECTION

Background Information: Name of Rater: _____ Affiliation: _____ Date of Field Visit: _____ Application No./Case No.: _____ Project Name: _____ Project Location: _____ Parcel No.: _____ Property Owner Name: _____ Property Owner Address: _____ Location: ____ ¼ Section of ____ ¼ Section, of Section ____, Township ____, Range ____, W.M., Edgewood, WA SOURCE OF INFORMATION: (Check all sources that apply). Site Visit: _____ USGS Topo Map: _____ NWI Map: _____ Aerial Photo: _____ Soil Survey: _____ Edgewood Inventory: _____ Edgewood Drainage Map: _____ Other: _____ -
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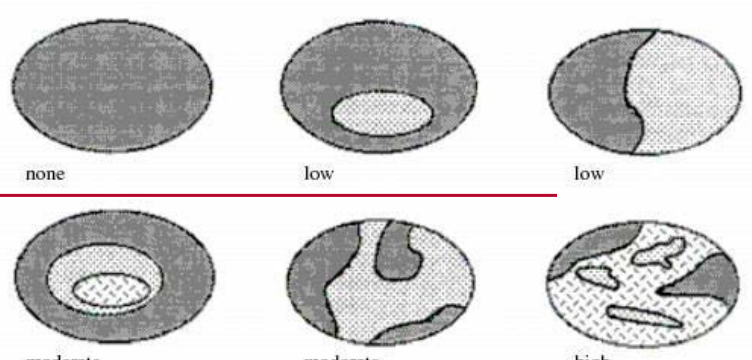
cover?	
3b4. Is > 50% (areal cover) of the dominant plants in one or more layers (canopy, young trees, shrubs, and herbs)-invasive/exotic plant species from the Table 1 list?	Yes: Category II No: Category I
3b5. Does the forested wetland contain three canopy layers (trees over 20 feet tall, shrubs or saplings, and herbaceous ground covers)?	Yes: Category II No: go to Q.5.
3e. Estuarine Wetlands	-
3e1. Is the wetland listed as National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park, or Educational, Environmental or Scientific Reserves designated under WAC 332-30-151?	Yes: Category I No: go to 3e2.
3e2. Is the wetland > 5 acres?	Yes: Category I
— or, is the wetland 1 to 5 acres;	Yes: go to 3e3.
— or, is the wetland < 1 acre?	Yes: go to 3e4.
3e3. Does the wetland meet at least 3 of the following 4 criteria:	Yes: Category I No: Category II
— minimum existing evidence of recent (since 1992) human-related disturbance such as diking, ditching, filling, cultivation, grazing, or the presence of nonnative plant species (see guidance for definition);	-
— surface water connection with tidal saltwater or tidal freshwater;	-
— at least 75% of the wetland has a 100-foot buffer of ungrazed pasture, open water, shrub, or forest;	-
— have at least 3 of the following features: low marsh, high marsh, tidal channels, lagoon(s), woody debris, or contiguous freshwater wetland?	-
3e4. Does the wetland meet all of the 4 criteria under 3e3 above?	Yes: Category II No: Category III
3d. Eelgrass and Kelp Beds	-
3d1. Are eelgrass beds present?	Yes: Category I No: go to 3d2.
3d2. Are there floating or nonfloating kelp bed(s) present with greater than 50% macro algal cover in the month of August or September?	Yes: Category I No: Category II
3e. Significant Spring Fed Wetland Systems	-
3e1. Is the spring fed wetland system at least ½ acre in size?	Yes: Category II No: go to Q.4.
Q.4. Category II and IV Wetlands	-
4a. Is the wetland associated with year-round or intermittent salmonid fish-bearing waters? Briefly describe source of information: _____ _____ _____ _____ _____	Yes: Category II No: go to 4b.
4b. Is the wetland less than or equal to 1 acre in size, hydrologically isolated, and comprised of one wetland class that is dominated by one plant species (monotypic vegetation)? — Monotypic vegetation is defined as greater than 80% areal cover by one plant species. — Hydrologically isolated wetland means a wetland which is not contiguous to any 100-year flood plain of any water-type; and, has no contiguous surface hydrology, hydric soil, or hydrophytic vegetation between the wetland and any other wetland or stream system.	Yes: Category IV No: go to Q.5.
Q.5. Wetlands with significant habitat value based on the following specific diversity and size criteria:	-
5a. Is the wetland 10 acres or greater in size and have 2 or more wetland classes, together with open water, at any time during the normal year?	Yes: Category II No: go to 5b.

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5b. Is the wetland 10 acres or greater in size, have 3 or more wetland classes, and 5 or more subclasses of vegetation in a dispersion pattern?		Yes: Category II No: go to 5e.
5c. Is the wetland 5 acres or greater in size, 40 to 60% open water at any time during a normal year, and 2 or more subclasses of vegetation in a dispersed pattern?		Yes: Category II No: go to Q.6.
Q.6. Wetlands with significant habitat value based on the following specific diversity and size criteria and significant use by fish and wildlife. Answer all questions and enter data requested: -		Circle Scores That Qualify
6a. Total Wetland Area	Acres	-
Estimate area, select from choices in the near right column, and score in the far right column: Enter acreage of wetland (including estimate of off-site acreage) here: _____ acres source: _____ -	>20.00 10—19.99 5—9.99 1—4.99 0.1—0.99 <0.1	Yes=6 Yes=5 Yes=4 Yes=3 Yes=2 Yes=1
6b. Wetland Community Types (include observations of off-site wetland area) Circle the wetland community types below that qualify: Open Water: If the area of open water is > 1/4 acre, or > 10% of the total wetland area. Source: _____ Aquatic Beds: If the area of aquatic beds are > 10% of the open water area, or > 1/4 acre. Emergent: If the area of emergent community type is > 1/4 acre, or > 10% of the total wetland area. Scrub-Shrub: If the area of scrub-shrub community type is > 1/4 acre, or 10% of the total wetland area. Forested: If the area of forested community type is > 1/4 acre, or 10% of the total wetland area.		- -
Add the number of wetland community types above that qualify, and then score according to the columns at right. e.g., If there are 4 community types (aquatic beds, open water, emergent, and scrub-shrub), you would circle 7 points in the far right column.	# of Community Types 1- 2- 3- 4- 5-	- Yes=1 Yes=3 Yes=5 Yes=7 Yes=10
6c. Plant Species Diversity (include observations of off-site wetland area) For all wetland community types (at right) that qualify in 6b. above, count the number of different plant species you can find. You do not have to name them. Score in column at far right: e.g., If a wetland has aquatic bed community type with 3 species, an emergent community type with 4 species, and a scrub-shrub community type with 2 species, you would circle 2, 2, and 1 in the far column. - -	# of Community Type Species Aquatic Bed — 1 — 2 Aquatic Bed — 3 Aquatic Bed — >3 Emergent — 1 — 2 Emergent — 3 — 4 Emergent — >4 Scrub-Shrub — 1 — 2 Scrub-Shrub — 3 — 4 Scrub-Shrub — >4 Forested — 1 — 2 Forested — 3 — 4 Forested — >4	- Yes=1 Yes=2 Yes=3 Yes=1 Yes=2 Yes=3 Yes=1 Yes=2 Yes=3 Yes=1 Yes=2 Yes=3
6d. Structural Diversity (include observations of off-site wetland area) If the wetland has a forested community type, add 1 point for each of the following: Trees > 50 feet tall Trees 20 feet to 49 feet tall Shrubs/saplings Herbaceous ground cover		- - Yes=1 Yes=1 Yes=1 Yes=1
6e. Decide from the diagrams below whether interspersions between wetland community types is high, moderate, low, or none?		-

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 none low low moderate moderate high			- High=3 Moderate=2 Low=1 None=0																					
6f. Habitat Features (include observations of off-site wetland areas) Answer questions below, circle features that apply, and score to right: Is there evidence of current use by beavers? Yes=3 Is a heron rookery located within 300 feet? Yes=2 Are raptor nest(s) located within 300 feet? Yes=1 Are there at least 3 standing dead trees (snags) per acre? Yes=1 Are any of these standing dead trees (snags) >10 inches in diameter? Yes=1 Are there any other perches (wires, poles, or posts)? Yes=1 Are there at least 3 downed logs at least 10' in length with a diameter >6" per acre (include observations of off-site wetland areas)? Yes=1			- - Yes=3 Yes=2 Yes=1 Yes=1 Yes=1 Yes=1 Yes=1																					
6g. Connection to streams Is the wetland connected at any time of the year via surface water to a seasonal stream? The connection could be during flood events, via a natural or manmade channel, culvert, or an area of open water. Yes=1			- Yes=1																					
6h. Adjacent Land Uses and Buffers <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">Step 1</th> <th style="width: 33%;">Step 2</th> <th style="width: 33%;">Step 3</th> </tr> </thead> <tbody> <tr> <td>Estimate (to the nearest 5%) the percent of each land use or buffer type (below) that adjoins the wetland boundary.</td> <td>Multiply result(s) of step 1: By 1, if buffer width is 25—50 feet; By 2, if buffer width is 50—100 feet; By 3, if buffer width is >100 feet.</td> <td>Score points according to table below:</td> </tr> <tr> <td>Then multiply the percent(s) by the factor(s) below and enter result in column to right:</td> <td>Enter results below and add subscores:</td> <td></td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>roads, buildings, or parking lots: ____% ____ x 0 =</td> <td>____ x ____ =</td> <td>900—1,200 - 600—899 - 300—599 - 100—299 -</td> </tr> <tr> <td>lawn, grazed pasture, vineyards, or annual crops: ____% x 1 =</td> <td>____ x ____ =</td> <td>Yes=4 - Yes=3 - Yes=2 - Yes=1</td> </tr> <tr> <td>ungrazed grassland or orchards: ____% ____ x 2 =</td> <td>____ x ____ =</td> <td></td> </tr> </tbody> </table>			Step 1	Step 2	Step 3	Estimate (to the nearest 5%) the percent of each land use or buffer type (below) that adjoins the wetland boundary.	Multiply result(s) of step 1: By 1, if buffer width is 25—50 feet; By 2, if buffer width is 50—100 feet; By 3, if buffer width is >100 feet.	Score points according to table below:	Then multiply the percent(s) by the factor(s) below and enter result in column to right:	Enter results below and add subscores:		-	-	-	roads, buildings, or parking lots: ____% ____ x 0 =	____ x ____ =	900—1,200 - 600—899 - 300—599 - 100—299 -	lawn, grazed pasture, vineyards, or annual crops: ____% x 1 =	____ x ____ =	Yes=4 - Yes=3 - Yes=2 - Yes=1	ungrazed grassland or orchards: ____% ____ x 2 =	____ x ____ =		
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-	-	-																						
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ungrazed grassland or orchards: ____% ____ x 2 =	____ x ____ =																							

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open water or native grasslands: ____% ____ x 3 =	____ x ____ = ____		
forest or shrub: ____% ____ x 4 =	____ x ____ = ____		
-	Add buffer total: ____		
6i. Connection to other habitat areas:			-
Is there a riparian corridor to other wetlands within 0.25 of a mile; or, a corridor > 100 feet wide with good forest or shrub cover to any other habitat area(1)?			Yes = 5
Is there a narrow corridor < 100 feet wide with good cover; or, a wide corridor > 100 feet wide with low cover to any other habitat area?			Yes = 3
Is there a narrow corridor < 100 feet wide with low cover; or, a significant habitat area within 0.25 mile but no corridor?			Yes = 1
Is the wetland and buffer completely isolated by development and or cultivated agricultural land?			Yes = 0
Add the scores circled (for Q.6a—Q.6i. above) to get a total:			Total = ____
Is the total greater than or equal to 22 points:			Yes: Category II No: Category III
(1) For purposes of this rating form the term "Habitat area" means any forested, shrub, and herbaceous areas that could be used by wildlife species that use wetlands to provide a part of their life cycle needs.			-

(Ord. 02-200 § 2).

TABLE 1

List of invasive/exotic plant species for Question 3a1 (peat wetlands); question 3b3 (forested wetlands); and question 4b (Category IV wetlands). This list is provided for use with the field data form.

Scientific Name	Common Name
<i>Agropyron repens</i>	Quackgrass
<i>Alopecurus pratensis, A. aquatis</i>	Meadow foxtail
<i>Arcetium minus</i>	Burdock
<i>Bromlus tectorum, B. rigidus, B. brizaeformis, B. secalinus, B. japonicus, B. mollis, B. commutatus, B. inermis, B. erectus</i>	Bromes
<i>Cenchrus longispinu</i>	Sandbur
<i>Centaurea solstitialis, C. repens, C. cyanus, C. maculosa, C. diffusa</i>	Knapweeds
<i>Cirsium vulgare, C. arvense</i>	Thistle
<i>Cynosurus cristatus, C. echinatus</i>	Dogtail
<i>Cytisus scoparius</i>	Scotch broom
<i>Daactylis glomerata</i>	Orchard grass
<i>Dipsacaeus sylvestris</i>	Teasel
<i>Digitaria sanguinalis</i>	Crab grass

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<i>Echinochloa crusgalli</i>	Barnyard grass
<i>Elaeagnus angustifolia</i>	Russian olive
<i>Euphorbia peplus, E. esula</i>	Spurge
<i>Festuca arundinacea, F. pratensis</i>	Fescue
<i>Holcus lanatus, H. mollis</i>	Velvet grass
<i>Hordeum jubatum</i>	Foxtail barley
<i>Hypericum perforatum</i>	St. John's wort
<i>Juncus effusus</i>	Soft rush
<i>Lolium perenne, L. multiflorum, L. temulentum</i>	Ryegrass
<i>Lotus corniculatus</i>	Birdfoot trefoil
<i>Lythrum salicaria</i>	Purple loosestrife
<i>Matricaria matricarioides</i>	Pineapple weed
<i>Medicago sativa</i>	Alfalfa
<i>Melilotus alba, M. officinalis</i>	Sweet clover
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Phleum pratense</i>	Timothy
<i>Phragmites communis</i>	Reed
<i>Poa compressa, P. palustris, P. pratensis</i>	Bluegrass
<i>Polygonum aviculare, P. convolvulus, P. cuspidatum, P. lapathifolium, P. persicaria</i>	Knotweeds
<i>Ranunculus repens</i>	Buttercup
<i>Rubus discolor, R. laciniatus, R. vestitus, R. macrophyllus</i>	Nonnative blackberry
<i>Salsola kali</i>	Russian thistle
<i>Scleria viridis</i>	Green bristlegrass
<i>Stizymbrium altissimum, S. loeselii, S. officinale</i>	Tumblemustards
<i>Tanacetum vulgare</i>	Tansy
<i>Trifolium dubium, T. pratense, T. repens, T. arvense, T. subterraneum, T. hybridum</i>	Clovers

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Cultivated species:	Wheat, Corn, Barley, Rye, etc:
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~~14.30.080—Figures:~~

~~A. Figure 14.30-1, Connecting Mosaic Pattern Wetlands.~~

~~B. Figure 14.30-2, General Wetland Review.~~

~~C. Figure 14.30-3, One-Family Wetland Review.~~

~~D. Figure 14.30-4, Wetland Buffer Averaging.~~

~~(Ord. 02-200 § 2).~~

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Chapter 14.40

~~CRITICAL FISH AND WILDLIFE HABITAT AREAS~~FISH AND WILDLIFE HABITAT
~~CONSERVATION AREAS~~

Sections:

- 14.40.010 Purpose.
14.40.020 ~~Critical fish and wildlife species and habitat areas.~~Fish and wildlife habitat conservation area identification and classification.
14.40.030 ~~Critical fish and wildlife habitat area.~~Fish and wildlife habitat conservation area review procedures.
14.40.040 ~~Critical fish and wildlife habitat area standards.~~Allowed activities.
14.40.050 ~~Mitigation Buffer~~ requirements.
14.40.060 ~~Buffer Mitigation~~ requirements.
14.40.070 Appendix

ees:

14.40.080 — Figures:

14.40.010 Purpose.

Many land use activities can impact the habitats of fish and wildlife. Special care must be taken in the management of lands that support ~~critical~~ fish and wildlife species to ensure that development occurs in a manner that is sensitive to their habitat needs. The purpose of this chapter is to identify ~~critical fish and wildlife species and habitats~~fish and wildlife habitat conservation areas and establish habitat protection procedures and mitigation measures that are designed to ~~minimize any negative impacts~~result in no net loss of habitat functions and ~~values associated with new development or regulated activities.~~ (Ord. 02-200 § 2).

14.40.020 ~~Critical fish and wildlife species and habitat areas.~~Fish and wildlife habitat conservation area identification and classification.

A. General. Critical fish and wildlife habitat areas are those areas that support critical fish and wildlife species, typically identified either by known point locations of specific species (such as a nest or den) or by habitat areas or both. ~~Designation. Fish and wildlife habitat conservation areas include:~~

B. Federally and State Listed Species and their Associated Habitats. Areas which have a primary association with federally or state listed endangered, threatened, or sensitive species of fish or wildlife (specified in 50 CFR 17.11, 50 CFR 17.12, WAC 232-12-011 and 232-12-014) and which if altered may reduce the likelihood that the species will survive and reproduce over the long term. The list of endangered, threatened, or sensitive species is maintained and located at:

<http://www.wdfw.wa.gov/wlm/diversty/soc/soc.htm>.

1. ~~Waters of the state.~~ Waters of the state include lakes, rivers, ponds, streams, and all other surface waters and watercourses within jurisdiction of the state of Washington, as classified in WAC 222-16-030.
2. ~~Areas with which federally designated endangered, threatened, and sensitive species have a primary association.~~ The U.S. Fish and Wildlife Service and the National Marine Fisheries Service should be consulted for current federal listing status.
3. ~~Areas with which state designated endangered, threatened, and sensitive species have a primary association.~~ The Washington State Department of Fish and Wildlife should be consulted for current state listing status.
4. ~~State priority habitats and areas associated with state priority species.~~ The state Department of Fish and Wildlife should be consulted for current listing of priority habitats and species.

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5. Habitats and species of local importance. The following fish and wildlife species and their associated habitat areas shall be regulated under this chapter:

- a. Fish. Coho salmon (*Oncorhynchus kisutch*), pink salmon (*Oncorhynchus gorbuscha*), chum salmon (*Oncorhynchus keta*), cutthroat trout (*Oncorhynchus clarkia*), and steelhead (*Oncorhynchus mykiss*).
- b. Birds. Great blue heron (*Ardea herodias*) and green heron (*Butorides virescens*).
- c. Areas with which state-listed monitor or candidate fish or wildlife species or federally listed candidate fish or wildlife species have a primary association, and which if altered may reduce the likelihood that the species will survive and reproduce over the long term.
- d. Old growth/mature forests.
- e. Heron rookeries.

B. Habitat boundary survey. If the department determines that a regulated habitat conservation area may be present within the project vicinity, the department may require the habitat area to be delineated and/or mapped by a qualified fisheries biologist or wildlife biologist who is knowledgeable of fish and wildlife habitat within western Washington or by the Washington Department of Fish and Wildlife. The boundary of aquatic habitats shall be the ordinary high water mark of the waterbody. The management recommendations for Washington's priority habitats and species or federal equivalent should be used as a tool for identifying and delineating wildlife habitat boundaries. The city may waive this requirement if there is adequate information available on the area proposed for development to determine the impacts of the proposed development and appropriate mitigating measures.

C. Mapping. The approximate location and extent of waters of the state and fish presence within the city are shown on maps maintained by the city. The city shall update the maps periodically as new information becomes available. The approximate location and extent of other fish and wildlife habitat conservation areas area shown on maps maintained by the Washington State Department of Fish and Wildlife and other state and federal agencies. These maps are to be used as a guide and do not provide definitive information about fish and wildlife habitat conservation area size or presence. Fish and wildlife habitat conservation areas may exist that do not appear on the maps.

D. Waters of the state classification. The city hereby adopts the water typing system specified in WAC 222-16-030, as described below:

- 1. Type S. All waters, within their ordinary high water mark, meeting the criteria as "shorelines of the state" and "shorelines of statewide significance" under RCW Chapter 90.58. As of the effective date of this title, there are no Type S streams within city jurisdiction.
- 2. Type F: segments of natural waters other than Type S Waters, which are within the bankfull widths of defined channels and periodically inundated area of their associated wetlands, or within lakes, ponds, or impoundments having a surface area of 0.5 acre or greater at seasonal low water and which in any case contain fish habitat.
- 3. Type Np: all segments of natural waters within the bankfull width of defined channels that are perennial non-fish habitat stream. Perennial stream waters do not go dry any time of a year of normal rainfall. However, for the purpose of water typing, Type Np Waters include the intermittent dry portions of the perennial channel below the uppermost point of perennial flow.
- 4. Type Ns: All segments of natural waters within the bankfull width of the defined channels that are not Type S, F, or Np waters. These are seasonal, non-fish habitat streams in which surface flow is not present for at least some portion of a year of normal rainfall and are not located downstream from any stream reach that is a Type Np Water. Ns Waters must be physically connected by an above-ground channel system to Type S, F, or Np Waters.

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Commented [AM22]: Question for City—Any additions/subtractions to this list? There's no BAS requirement to designate (or not) specific species and habitats; it's up for local jurisdictions to decide.

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C. Species of Local Importance. In addition to federally and state-listed species, the following fish and wildlife species and their associated habitat areas shall be regulated under this chapter:

1. Fish. Coho salmon, pink salmon, chum salmon, sockeye salmon, cutthroat trout, steelhead.

2. Birds. Herons.

D. Habitats of Local Importance.

1. Areas with which state-listed monitor or candidate fish or wildlife species or federally-listed candidate fish or wildlife species have a primary association (habitat areas and point locations), as specified in Washington Department of Wildlife Policies 4802 and 4803, and which if altered may reduce the likelihood that the species will survive and reproduce over the long term. The list of endangered, threatened, or sensitive species is maintained and located at:

<http://www.wdfw.wa.gov/wlm/diversty/soc/soc.htm>.

2. Documented habitat areas or potential habitat areas and point locations for fish and wildlife species. These areas include specific habitat types, which are infrequent in occurrence in Edgewood and may provide specific habitats with which endangered, threatened, sensitive, candidate, or monitor fish and wildlife species have a primary association, such as breeding habitat, winter range, and movement corridors. These areas include the following:

a. Oregon white oak trees and woodlands. Oregon white oak woodlands, stands, and individual trees meeting the following criteria shall be considered priority habitat and shall be subject to protection under the provisions of this chapter:

i. Priority Oregon White Oak Woodlands. Stands of Oregon white oak or oak/conifer associations where the stand is at least one acre in size and the canopy coverage of the oak component of the stand is greater than or equal to 25 percent (see Figure 14.40-1).

ii. Significant Oaks and Stands. Single oaks, or stands of oaks smaller than one acre in size, when any of the following criteria are met:

(A) Individual trees having a diameter at breast height of 20 inches or more; or

(B) Oregon white oak stands in which the oak trees have an average diameter at breast height of 15 inches or more regardless of stand size.

b. Old growth/mature forests.

c. Caves.

d. Cliffs.

e. Snag-rich areas and logs.

f. Waters of the state and/or natural waters and adjacent shoreline areas (200 feet landward measured from the ordinary high water mark) including:

i. All water bodies classified by the Washington Department of Natural Resources (DNR) water typing classification system as detailed in WAC 222-16-030 and 222-16-031.

ii. All waters that support critical fish or wildlife species (i.e., areas that have connectivity to fish-bearing waters and may potentially provide habitat given no natural barriers to fish passage).

iii. Ponds and their submerged aquatic beds.

g. Wetlands (refer to Chapter 14.30 EMC).

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Chapter 14.40 ~~CRITICAL FISH AND WILDLIFE~~
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~~h. Heron rookeries.~~

~~E. Potential Critical Fish and Wildlife Habitat Areas. Potential critical fish and wildlife habitat areas, as depicted on the Critical Areas Atlas—Critical Fish and Wildlife Habitat Area Maps, are those areas where the suspected presence of critical fish or wildlife species is sufficient to require critical fish or wildlife habitat area review (see Figure 14.40-2). Potential critical fish and wildlife habitat areas are determined using the following criteria:~~

- ~~1. A habitat area identified on one of the maps listed in EMC 14.10.140, Appendix A (includes but is not limited to breeding habitat, winter ranges, movement corridors, oak woodlands, streams, ponds, etc., as outlined in subsections (A) through (D) of this section) plus the adjacent 200 feet surrounding the habitat area.~~
- ~~2. A point location identified on one of the maps listed in EMC 14.10.140, Appendix A, (including but not limited to nests, dens, rookeries, etc.) plus the adjacent 800 feet surrounding the point location. (Ord. 02-200 § 2).~~

14.40.030 Critical fish and wildlife habitat~~Fish and wildlife habitat conservation~~ area review procedures.

~~A. Habitat management plan. When the department's maps, sources, or field investigations indicate that the proposed project area is located within 300 feet of a known or suspected fish or wildlife habitat conservation area, an applicant shall submit a habitat management plan prepared by a qualified fisheries biologist or wildlife biologist. The requirement to provide a habitat conservation plan for habitat conservation areas may be waived if the department determines that there are no potential direct and/or indirect impacts on designated species or habitats that would result from the proposed development. Habitat management plans shall comply with the requirements established in EMC 14.40.070, Appendix A.~~

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~~A. General Requirements:~~

~~1. The City's Critical Areas Atlas—Critical Fish and Wildlife Habitat Area Maps provide an indication of where potential critical fish and wildlife habitat areas are located within the city. The presence or location of a potential critical fish or wildlife species, habitat area, or point location that has not been mapped, but that may be present on or adjacent to a site, shall be determined using the procedures and criteria established in this chapter.~~

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~~2. The department will complete a review of the Critical Areas Atlas—Critical Fish and Wildlife Habitat Area Maps and other source documents for any proposed regulated activity to determine whether the site for the regulated activity is located within a potential critical fish or wildlife habitat. Identification of a potential critical fish or wildlife habitat area may also occur as a result of field investigation conducted by Department or Washington Department of Fish and Wildlife (WDFW) staff.~~

~~3. When the department's maps, sources, or field investigation indicates that the site for a proposed regulated activity is located within a potential critical fish or wildlife habitat area, the department shall require the submittal of a critical fish and wildlife application and habitat assessment to determine the presence or absence of critical fish or wildlife species or habitat. The habitat assessment shall be documented as set forth in subsection (B) of this section (see EMC 14.40.080(C), Figure 14.40-3).~~

~~4. The requirement to conduct a habitat assessment may be waived by the department when the department determines that no other critical fish and wildlife species and habitats, as set forth in EMC 14.40.020, are present. The applicant shall be required to comply with the standards set forth in EMC 14.40.040(D).~~

~~5. Projects undergoing review for critical fish and wildlife habitat areas shall be routed to tribal agencies with jurisdiction for review. Tribes will have an opportunity to provide specific habitat information on proposed development sites. If necessary, the department will seek additional assistance from the Washington Department of Fish and Wildlife and similar appropriate state and federal agencies.~~

~~6. Approval of a critical fish and wildlife application shall be granted upon a determination that the habitat assessment and mitigation plan, if applicable, are thorough and accurate and meet all requirements of this title.~~

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7. If application of the standards contained in this chapter would deny all reasonable use of a site, the applicant may pursue a reasonable use exception as set forth in EMC 14.20.050.

8. Unless otherwise stated in this chapter, the critical area protective measure provisions contained in EMC 14.10.080 shall apply.

B. Habitat Assessment. A habitat assessment is a site investigation process to evaluate the presence or absence of a potential critical fish or wildlife species or habitat affecting a subject property.

1. The applicant may select either a fish or wildlife biologist, as applicable, or department staff to conduct a habitat assessment to determine whether or not a critical fish or wildlife habitat area, point location, and any associated buffer are located on the site for a proposed development as outlined below:

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a. Applicants for single-family dwellings or agricultural activities may retain department staff to complete the habitat assessment as follows:

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i. Requests for department staff to conduct a habitat assessment shall be accompanied with a critical fish and wildlife habitat area application and associated fee(s).

ii. If department staff conducts the habitat assessment and determines that no critical fish or wildlife habitat areas, point locations, or associated buffers are present on the site, then the critical fish and wildlife habitat area review will be considered complete.

iii. If department staff conducts the habitat assessment and determines that critical fish or wildlife habitat areas, point locations, or associated buffers are present on the site, then the applicant shall be required to submit a habitat assessment study or a habitat assessment report as outlined in subsection (B)(1)(b) of this section. This requirement may be waived if the applicant agrees to comply with the standards set forth in EMC 14.40.040 and the critical area protective measures set forth in EMC 14.10.080.

b. If a fish or wildlife biologist conducts the habitat assessment, then the following documentation shall be submitted to the department:

i. The habitat assessment shall be submitted in the form of a habitat assessment letter when the fish or wildlife biologist completes the field investigation and determines that a critical fish or wildlife habitat area, point location, or associated buffer is not located on the site. The habitat assessment letter shall meet the requirements contained in EMC 14.40.070, Appendix A (see EMC 14.40.080(C), Figure 14.40-3).

ii. The habitat assessment shall be submitted in the form of a habitat assessment study when the fish or wildlife biologist completes the field investigation and determines a critical fish or wildlife habitat area, point location, or associated buffer is located on the site and when the proposed regulated activity complies with the standards set forth in EMC 14.40.040 and the buffer requirements as set forth in EMC 14.40.060. The habitat assessment study shall meet the requirements contained in EMC 14.40.070, Appendix B (see EMC 14.40.080(C), Figure 14.40-3).

iii. The habitat assessment shall be submitted in the form of a habitat assessment report when the fish or wildlife biologist completes the field investigation and determines a critical fish or wildlife habitat area, point location, or associated buffer is located on the site and when the proposed development activity does not or cannot comply with the standards set forth in EMC 14.40.040 and the buffer requirements as set forth in EMC 14.40.060. The habitat assessment report shall meet the requirements contained in EMC 14.40.070, Appendix C (see EMC 14.40.080(C), Figure 14.40-3).

iv. Habitat assessments shall be submitted to the department for review and approval together with a critical fish and wildlife habitat area application and associated fee(s).

v. Habitat assessments shall be prepared, signed, and dated by a fisheries or wildlife biologist (as defined in EMC 14.10.060), as applicable to the particular species or habitat type.

vi. Habitat assessment reports shall address the mitigation requirements set forth in EMC 14.40.050.

2. All habitat assessments submitted under the requirements of this chapter shall, at a minimum, include the following:

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a. The parcel number of the subject property.

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b. The site address of the subject property, if one has been assigned by the city.

c. The date and time when the site evaluation for the habitat assessment was conducted and the date when the habitat assessment was prepared.

d. The credentials of the fish or wildlife biologist who prepared the habitat assessment.

e. The mailing address and phone number of the property owner and the fish or wildlife biologist that prepared the habitat assessment.

f. A detailed description of the vegetation on and adjacent to the site.

g. Identification and a detailed description of any critical fish or wildlife species or habitats, as set forth in EMC 14.40.020, on or adjacent to the site and the distance of such habitats or species in relation to the site. Describe efforts to determine the status of any critical species in the project area, including information on survey methods, timing, and results of surveys for species or suitable habitat identification.

h. Include any information received from biologists with special expertise on the species or habitat type, such as WDFW, Tribal, USFS, or other local, regional, federal, and university fish, wildlife and habitat biologists and plant ecologists. Include any such conversations in the habitat assessment and cite as personal communication.

i. A map showing the location of the site, including written directions.

j. The department may also require that the applicant request a separate evaluation of the site by WDFW staff to confirm the findings of the habitat assessment.

3. Hold harmless clauses, disclaimers, and limitations are not allowed within a habitat assessment letter.

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4. The department shall review the habitat assessment and either:

a. Accept the habitat assessment and approve the critical fish and wildlife application; or

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b. Reject the habitat assessment and notify the applicant in writing of the reasons why the habitat assessment was rejected. (Ord. 02-200 § 2).

14.40.040 ~~_____ Critical fish and wildlife habitat area standards~~ Allowed activities.

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A. General.

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1. Activities permitted under this section shall comply with the provisions of all other chapters contained in this title.

2. All proposed regulated activities shall comply with the buffer requirements contained in EMC 14.40.060.

3. If the department determines that mitigation is necessary to offset the identified impacts from a proposed development, the applicant shall comply with the mitigation requirements set forth in EMC 14.40.050.

4. Unless otherwise allowed in this chapter, all regulated activities shall be located outside critical fish and wildlife habitat areas and associated buffers.

5. A proposed regulated activity may be allowed within a critical fish or wildlife habitat area or required buffer when located on an existing lot of record that was created prior to the effective date of the ordinance codified in this chapter subject to the following conditions:

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- ~~a. Applicants shall demonstrate there are no other feasible alternatives that would allow the proposed development to occur completely outside the critical fish or wildlife habitat area or the required associated buffer.~~
- ~~b. The development cannot be located outside the critical fish or wildlife habitat area or required buffer due to topographic constraints of the parcel or size and/or location of the parcel in relation to the limits of the critical fish or wildlife habitat area or required buffer.~~
- ~~c. If applicable, a building setback variance has been reviewed, analyzed, and rejected as a feasible alternative to encroachment into the critical fish or wildlife habitat area or associated buffer.~~
- ~~d. The proposed project complies with the standards set forth in this section and has demonstrated through the submittal of a habitat assessment report that adequate mitigation as outlined in EMC 14.40.050 has been provided.~~

A. The following activities may be permitted in habitat conservation areas and/or their buffers when all reasonable measures have been taken to avoid and mitigate adverse effects on species and habitats and a net loss of habitat functions will not occur. In order to verify the following conditions, a habitat management plan meeting the requirements of EMC 14.40.070, Appendix A must be submitted.

B. Riparian Areas, Ponds, and Associated Buffers. The following specific regulated activities may occur within a riparian area, pond, or associated buffer subject to the following standards:

1. Clearing and Grading. When clearing and grading is permitted as part of an authorized regulated activity or as otherwise allowed in these standards, the following shall apply:

- a. Grading is allowed only during the dry season, which is typically regarded as beginning on May 1st and ending on October 1st of each year; the department may extend or shorten the dry season on a case-by-case basis, determined on actual weather conditions.
- b. Filling or modification of a wetland or wetland buffer is permitted only if it is conducted as part of an approved wetland permit issued by the department.
- c. The soil duff layer shall remain undisturbed to the maximum extent possible. Where feasible, any soil disturbed shall be redistributed to other areas of the project site.
- d. The moisture holding capacity of the topsoil layer shall be maintained by minimizing soil compaction or reestablishing natural soil structure and infiltrative capacity on all areas of the site that impervious surfaces do not cover.

e. Erosion and sediment control that meets or exceeds the standards set forth in Edgewood's adopted stormwater management manual (Chapter 13.05 EMC) shall be provided. 1. Stream Erosion Control Measures. New or replacement stream erosion control measures shall be subject to the following standards:

- a. The proposal complies with the provisions set forth in Chapter 14.110 EMC.
- b. The required habitat management plan demonstrates the following:
 - i. Natural stream processes will be maintained. The project will not result in increased beach erosion or alterations to, or loss of, stream substrate within one-quarter mile of the site.
 - ii. The stream erosion control measure will not adversely impact fish or wildlife habitat conservation areas or associated wetlands.

2. Docks and launching ramps. Construction, reconstruction, repair, and maintenance of docks and public or private launching ramps are subject to all of the following:

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a. The dock or ramp is located and oriented and constructed in a manner that minimizes adverse effects on water quality, movement of aquatic and terrestrial life, ecological processes, spawning habitat, and wetlands.

b. Docks and ramps shall meet or exceed all relevant state and federal permit requirements.

3. Roads, Trails, Bridges, and Rights-of-Way. Construction of trails, roadways, bridges, and culverts may be allowed subject to the following standards:

a. There is no other feasible alternative route with less impact on the environment.

b. The crossing minimizes interruption of downstream movement of wood, ice, and gravel and the movement of all fish and wildlife.

c. Stream crossings, where necessary, shall only occur as near to the perpendicular with the stream as possible and be limited to the minimum width necessary.

d. Road bridges and culverts are designed according to the latest versions of the Washington Department of Fish and Wildlife Water Crossing Design Guidelines (Washington Department of Fish and Wildlife) the Anadromous Salmonid Passage Facility Design guidelines (National Marine Fisheries Service).

e. Trails and associated viewing platforms shall be made of pervious materials.

4. Utility Facilities. New utility lines and facilities are permitted to cross habitat conservation areas if they comply with the following standards

a. Avoid fish and wildlife habitat conservation areas to the maximum extent possible.

b. Cross at an angle greater than 60 degrees to the centerline of the channel in streams or perpendicular to the channel centerline whenever boring under the channel is not feasible.

c. Crossings are contained within the footprint of an existing road or utility crossing where possible.

d. Avoid paralleling the stream or following a down-valley course near the channel.

e. Do not increase or decrease the natural rate of shore migration or channel migration.

f. Bore beneath the scour depth and hyporheic zone of the water body and channel migration zone (CMZ) where feasible.

5. Public Flood Protection Measures. New public flood protection measures and expansion of existing facilities may be approved, subject to the department's review and approval of a habitat management plan.

6. Instream Structures. New instream structures (e.g., such as, but not limited to, high flow bypass, sediment ponds, instream ponds, retention and detention facilities, dams, weirs, etc.) shall be allowed only as part of an approved mitigation or restoration project or watershed basin plan approved by the department and upon acquisition of any required state or federal permits. The structure shall be designed to avoid modifying flows and water quality in ways that may adversely affect critical fish species. Proposals for placement of water quality, water quantity, or other instruments or structures within a stream to gather data, or as a mitigation measure, shall be exempt from the provisions of this title upon review and approval by the department.

7. Stormwater Conveyance Facilities. Conveyance structures whose sole purpose is to convey stormwater already treated for quality, or water bypassed around water quality treatment facilities pursuant to an approved stormwater plan, may be constructed subject to the following standards:

a. No other feasible alternatives with less impact exist;

b. Mitigation for impacts is provided;

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c. ~~Stormwater conveyance facilities shall incorporate fish habitat features;~~

d. ~~Vegetation shall be maintained and, if necessary, added adjacent to all open channels and ponds in order to retard erosion, filter out sediments, and shade the water.~~

8. ~~On-Site Sewage Systems and Wells.~~

a. ~~New on-site sewage systems and individual wells are permitted if accessory to an approved structure.~~

b. ~~Repairs to failing on-site sewage systems associated with an existing structure shall be accomplished by utilizing one of the following methods that result in the least impact:~~

i. ~~Connection to an available public sewer system;~~

ii. ~~Replacement with a new on-site sewage system located in a portion of the site that has already been disturbed by development and is located landward as far as possible, provided the proposed sewage system is in compliance with the provisions in Chapter 14.70 EMC; or~~

iii. ~~Repair to the existing on-site septic system.~~

B. ~~The activities listed below are allowed in habitat conservation areas and their buffers, and do not require submission of a habitat management plan, except where such activities would result in a loss of the functions and values of habitat conservation areas or buffers.~~

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12. ~~Vegetation Removal, Disturbance, and Introduction. Limited vegetation removal shall be allowed subject to EMC 18.90.180 (tree preservation) and the following standards:~~

a. ~~Hazard trees may be cut; provided, that:~~

i. ~~The applicant submits a report from a certified arborist, licensed architect, or professional forester that documents the hazard and provides a replanting schedule for the replacement trees and receives written approval from the city authorizing the tree removal;~~

ii. ~~Tree cutting shall be limited to limbing and crown thinning, unless otherwise justified by the landowner's expert. Where limbing or crown thinning is not sufficient to address the hazard, trees should be topped to remove the hazard rather than cut at or near the base of the tree. All vegetation cuttings (tree stems, branches, tops, etc.) shall be left within the ~~critical area~~ ~~habitat area~~ or buffer unless removal is warranted due to the potential for disease transmittal to other healthy vegetation;~~

iii. ~~The landowner shall replace any trees that are felled or topped with new trees at a ratio of two replacement trees for each tree felled or topped. Tree species that are native and indigenous to the site shall be used;~~

iv. ~~Hazard trees determined to pose an imminent threat or danger to public health or safety, or to public or private property, or serious environmental degradation may be removed or topped by the landowner prior to receiving written approval from the department; provided, that within 14 days following such action, the landowner shall submit the necessary report and replanting schedule demonstrating compliance with subsections (B)(12)(a)(i) through (iii) of this section.~~

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b. ~~Trimming of vegetation for purposes of providing view corridors will be allowed; provided, that trimming shall be limited to view corridors of 20 feet in width or less, that no more than 30 percent of the live crown is removed, and that benefits to fish and wildlife habitat are not reduced. Trimming shall be limited to hand pruning of branches and vegetation. Trimming shall not include felling, topping, or removal of trees.~~

c. ~~Limited vegetation and tree removal subject to the conditions contained in an approval for a regulated activity.~~

The Edgewood Municipal Code is current through Ordinance 17-498, passed April 11, 2017.

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~~d. Introduced vegetation shall be limited to species that are native and historically indigenous to the site.~~

23. Fencing. Fencing shall be placed in such a manner as to maintain wildlife movement corridors and not create any fish passage blockages. The department shall approve the location, type, and height of any proposed fencing.

~~4. Shoreline Erosion Control Measures. New or replacement shoreline erosion control measures shall be subject to the following standards:~~

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~~a. The proposal complies with the provisions set forth in Chapter 14.110 EMC.~~

~~b. The applicant has submitted a habitat assessment report, as set forth in EMC 14.40.030.~~

~~c. The habitat assessment report demonstrates the following:~~

~~i. Natural shoreline processes will be maintained. The project will not result in increased beach erosion or alterations to, or loss of, shoreline substrate within one-quarter mile of the site.~~

~~ii. The shoreline erosion control measure will not adversely impact critical fish or wildlife habitat areas or associated wetlands.~~

~~iii. Adequate mitigation measures, as set forth in EMC 14.40.050, are provided that ensure no net loss of intertidal or riparian habitat or function occurs as a result of the proposed shoreline erosion control measure.~~

~~iv. No alteration of intertidal migration corridors occurs as a result of the proposed shoreline erosion control measure.~~

~~5. Streambank Stabilization. Streambank stabilization to protect new structures from future channel migration is not permitted except when such stabilization is achieved through bioengineering or soft armoring techniques. Streambank stabilization shall comply with the provisions set forth in Chapter 14.70 EMC.~~

~~6. Launching Ramps — Public or Private. Launching ramps may be allowed when the applicant has submitted a habitat assessment report as set forth in EMC 14.40.030 that has demonstrated the following:~~

~~a. The project will not result in increased beach erosion or alterations to, or loss of, shoreline substrate within one-quarter mile of the site.~~

~~b. The ramp will not adversely impact critical fish or wildlife habitat areas or associated wetlands.~~

~~c. Adequate mitigation measures, as set forth in EMC 14.40.050, are provided that ensure no net loss of intertidal or riparian habitat or function occurs as a result of the ramp.~~

~~d. No alteration of intertidal migration corridors as a result of the ramp.~~

~~7. Docks. Repair and maintenance of an existing dock or pier shall be permitted subject to the following:~~

~~a. There is no increase in the use of materials creating shade for predator species;~~

~~b. There is no expansion in overwater coverage;~~

~~c. There is no new spanning of waters between three and 13 feet deep;~~

~~d. There is no increase in the size and number of pilings; and~~

~~e. There is no use of toxic materials (such as creosote) that come in contact with the water.~~

~~8. Roads, Trails, Bridges, and Rights-of-Way. Construction of trails, roadways, and minor road bridging (less than or equal to 30 feet wide) may be allowed subject to the following standards:~~

~~a. There is no other feasible alternative route with less impact on the environment.~~

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~~b. The crossing allows for uninterrupted downstream movement of wood and gravel.~~

~~c. Mitigation, pursuant to EMC 14.40.050, for impacts is provided.~~

~~d. Road bridges are designed according to the WDFW Habitat and Lands Environmental Division's Fish Passage Design at Road Culverts, March, 1999, and the NMFS Guidelines for Salmonid Passage at Stream Crossings, 2000.~~

~~e. Trails and associated viewing platforms shall be made of pervious materials.~~

~~9. Utility Facilities.~~

~~a. Installation of a utility is permitted if constructed in an existing, improved roadway, driveable surface or shoulder, subject to compliance with Pierce County road maintenance best management practices (BMPs).~~

~~b. New utility lines and facilities are permitted to cross watercourses if they comply with the following standards:~~

~~i. Avoid critical fish and wildlife habitat areas to the maximum extent possible.~~

~~ii. Cross at an angle greater than 60 degrees to the centerline of the channel in streams or perpendicular to the channel centerline whenever boring under the channel is not feasible.~~

~~iii. Crossings are contained within the footprint of an existing road or utility crossing where possible.~~

~~iv. Avoid paralleling the stream or following a down-valley course near the channel.~~

~~v. Do not increase or decrease the natural rate of shore migration or channel migration.~~

~~vi. Bore beneath the scour depth and hyporheic zone of the water body and channel migration zone (CMZ) where feasible.~~

~~10. Public Flood Protection Measures. New public flood protection measures and expansion of existing ones may be approved, subject to the department's review and approval of a habitat assessment report or the approval of a federal biological assessment.~~

~~11. Instream Structures. A new instream structure (e.g., such as, but not limited to, high flow bypass, sediment ponds, instream ponds, retention and detention facilities, tide gates, dams, weirs, etc.) shall be allowed only as part of an approved mitigation or restoration project or watershed basin plan approved by the city and upon acquisition of any required state or federal permits. The structure shall be designed to avoid modifying flows and water quality in ways that may adversely affect critical fish species. Proposals for placement of water quality, water quantity, or other instruments or structures within a stream to gather data, or as a mitigation measure, shall be exempt from the provisions of this title upon review and approval by the department.~~

~~12. Stormwater Conveyance Facilities. Conveyance structures whose sole purpose is to convey stormwater already treated for quality, or water bypassed around water quality treatment facilities pursuant to an approved stormwater plan, may be constructed subject to the following standards:~~

~~a. No other feasible alternatives with less impact exist;~~

~~b. Mitigation for impacts is provided;~~

~~c. Stormwater conveyance facilities shall incorporate fish habitat features;~~

~~d. Vegetation shall be maintained and, if necessary, added adjacent to all open channels and ponds in order to retard erosion, filter out sediments, and shade the water.~~

~~13. On-Site Sewage Systems and Wells.~~

~~a. New on-site sewage systems and individual wells are permitted if accessory to an approved structure.~~

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b. ~~Repairs to failing on-site sewage systems associated with an existing structure shall be accomplished by utilizing one of the following methods that result in the least impact:~~

- i. ~~Connection to an available public sewer system;~~
- ii. ~~Replacement with a new on-site sewage system located in a portion of the site that has already been disturbed by development and is located landward as far as possible, provided the proposed sewage system is in compliance with the provisions in Chapter 14.70 EMC; or~~
- iii. ~~Repair to the existing on-site septic system.~~

14. ~~New Agricultural Activities. New agricultural activities are permitted subject to the following:~~

- a. ~~Agricultural activities and structures shall comply with the provisions of Chapter 14.70 EMC, Flood Hazard Areas.~~
- b. ~~The agricultural activity is in compliance with the USDA, NRCS Conservation Reserve Program farm management standards.~~
- c. ~~A copy of an approved NRCS or Pierce County conservation district farm management plan that documents compliance with the USDA, NRCS Conservation Reserve Program farm management standards has been submitted to the department for review and approval.~~

15. ~~Structures and Landscaped Areas. New construction, redevelopment, or additions or expansions of existing structures or reconstruction of damaged structures may be permitted subject to the following:~~

- a. ~~Maximum disturbance (including the principal structure, accessory structures, and related appurtenances such as landscaped areas, wells, on-site septic systems, etc.) within the habitat area and/or associated buffer shall be:~~
 - i. ~~Two thousand five hundred square feet if the area of the lot within the buffer is 5,000 square feet or less;~~
 - ii. ~~Five thousand square feet if the area of the lot within the buffer is 10,000 square feet or greater;~~
 - iii. ~~Fifty percent of the area of the lot if the area within the buffer is between 5,001 and 9,999 square feet; and~~
 - iv. ~~Expansions and redevelopment projects shall be limited to the lesser of 1,000 additional square feet of disturbance area or the same area and disturbance criteria that would have been permitted if the site were undeveloped.~~
- b. ~~Development is prohibited within 50 feet of any waterbody, watercourse, as measured landward from the ordinary high water mark.~~
- c. ~~Development is prohibited within any side channel, oxbow, spring, or other type of off-channel habitat including connectable relic channels or oxbows.~~
- d. ~~The area not disturbed by development shall be managed for native or approved vegetation and planted with native or approved vegetation where necessary following adopted guidelines to reestablish natural forested conditions (example: WDFW's Restoring the Watershed, A Citizen's Guide to Riparian Restoration in Western Washington).~~
- e. ~~The proposal complies with the standards set forth in Chapter 14.70 EMC, Flood Hazard Areas.~~
- f. ~~The expansion of existing multifamily structures and the conversion of lots from single-family to multifamily use is prohibited.~~

16. ~~Alteration of Watercourses. Alteration of watercourses shall comply with the standards set forth in subsection (D) of this section.~~

C. ~~Oregon White Oak Trees and Woodlands.~~

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1. ~~Habitat Protection. Oak woodlands, stands, and individual trees meeting the criteria set forth in EMC 14.40.020(D)~~ shall be protected as follows:

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a. ~~Priority Oregon White Oak Woodlands.~~

i. ~~Priority Oregon white oak woodlands shall be protected through inclusion within a conservation tract meeting the requirements set forth in EMC 14.40.060. The tract shall extend a minimum of five feet beyond the outermost dripline of the trees within the woodland.~~

ii. ~~A minimum of 80 percent of the Oregon white oak trees on site having a diameter at breast height of six inches or larger shall be preserved within the conservation tract.~~

iii. ~~The conservation tract shall be maintained in an undisturbed state except for periodic watering, grass mowing of not more than four times per year, and hand removal of noxious or invasive plants, including conifer seedlings and saplings.~~

iv. ~~No clearing, grading, filling, or construction of any kind shall occur within the conservation tract.~~

v. ~~Use of pesticides, herbicides, rodenticides, fungicides, or fertilizers in the conservation tract shall be prohibited.~~

vi. ~~All oak snags within the conservation tract shall be retained.~~

vii. ~~Downed or felled oak trees within the conservation tract shall be retained; provided, that such trees may be selectively cut to further enhance habitat value.~~

b. ~~Significant Oaks and Stands.~~

i. ~~Significant Oaks. Seventy percent of all Oregon white oaks having a diameter at breast height of 20 inches or greater shall be preserved.~~

ii. ~~Significant Oak Stands. A minimum of 50 percent of the Oregon white oak trees within the stand shall be preserved.~~

iii. ~~Downed or felled oak trees and snags within significant oak stands shall be retained when located within a tract of land separate from individually owned lots.~~

iv. ~~Trees may be located within individually owned lots or a separate tract(s) at the discretion of the developer.~~

2. ~~Protection of Trees during Construction. Trees conserved pursuant to this chapter shall be protected before and during site development and construction through adherence to the following requirements:~~

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a. ~~A tree protection area shall be designed to protect each tree or tree stand during site development and construction. Tree protection areas may vary widely in shape, but must extend a minimum of five feet beyond the existing tree canopy area along the outer edge of the dripline of the tree(s), unless otherwise approved by the department.~~

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b. ~~Tree protection areas shall be added and clearly labeled on all applicable site development and construction drawings submitted to the department.~~

c. ~~Temporary construction fencing at least three feet tall shall be erected around the perimeter of the tree protection areas prior to the initiation of any clearing or grading. The fencing shall be posted with signage clearly identifying the tree protection area. The fencing shall remain in place through site development and construction.~~

d. ~~No clearing, grading, filling, or other development activities shall occur within the tree protection area, except where approved in advance by the department and shown on the approved plans for the proposal.~~

e. ~~No vehicles, construction materials, fuel, or other materials shall be placed in tree protection areas. Movement of any vehicles within tree protection areas shall be prohibited.~~

f. ~~No nails, rope, cable, signs, or fencing shall be attached to any tree proposed for retention.~~

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g. The department may approve the use of alternate tree protection techniques if an equal or greater level of protection will be provided.

D. ~~Standards for Other Critical Habitat Areas.~~ Standards for critical habitat areas not listed in EMC 14.40.030(A) and (B) shall be determined on a case-by-case basis, based upon the needs of specific species or habitat area of study. The department will coordinate with the WDFW in these instances to determine appropriate standards and development a habitat management plan. (Ord. 16-482 § 2 (Exh. C); Ord. 02-200 § 2).

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14.40.050 Buffer standards.

A. Determining buffer widths. Buffers shall be required as set forth for each habitat type. The required buffers shall be delineated, both on a site plan or plat, and on the property prior to approval of any regulated activity.

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1. Aquatic habitat conservation areas.

a. Buffers for aquatic habitat conservation areas shall be based upon the water type classification of the water body as specified in WAC 22-16-030. Refer to Table 14.40.050 for the water types and the associated buffer requirements.

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b. The required buffer width shall be measured in all directions from the ordinary high water mark.

c. The required buffer shall be extended to include any adjacent regulated wetland(s), landslide hazard areas, and/or erosion hazard areas and required buffers.

2. Non-aquatic habitat conservation areas. Appropriate buffers for critical habitat areas and species not listed in Table 14.40.050 shall be determined by the Washington Department of Fish and Wildlife or by a qualified wildlife biologist and documented in an approved habitat management plan.

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Table 14.40.050
Buffer Standards

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Water Type	Buffer Width ¹
Type S	150 ft. ²
Type F	100 ft.
Type Np	60 ft.
Type Ns	35 ft.

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¹ In the event that buffers for any habitat conservation area or other critical area are contiguous or overlapping, the landward-most edge of all such buffers shall apply.

² As of the effective date of this title, there are no Type S streams within city jurisdiction.

C. Modification to Buffer Width Requirements. The standard buffer widths of subsection (A) of this section may be modified as follows:

1. Buffer Width Reductions. A buffer width reduction may be proposed through submittal of a habitat management plan. Buffer reductions of up to a maximum of 25 percent may be allowed when the applicant demonstrates the following circumstances:

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a. Buffer encroachment is unavoidable.

b. The existing buffer is predominately un-vegetated, composed of nuisance species, or is in an otherwise highly disturbed condition.

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- c. Buffer reduction with enhancement will provide equal or greater protection of current habitat functions and values, and will not adversely affect salmon habitat.
- d. The buffer reduction will not increase the risk of slope failure or downslope stormwater drainage impacts.
- e. The minimum width of the buffer at any given point shall be at least seventy-five (75) percent of the standard width, or twenty-five (25) feet, whichever is greater.
- f. The project includes a buffer enhancement plan as part of the mitigation required by EMC 14.40.060. The buffer enhancement plan shall use native plant species.

2. Buffer Width Increases. The department may require increased buffer width(s) when any of the following are identified:

- a. A larger buffer is necessary to maintain viable populations of existing species or protect the existing functions of the habitat area;
- b. The adjacent land is susceptible to severe erosion and erosion control measures will not effectively prevent adverse habitat impacts;
- c. The adjacent land has minimal vegetative cover or slopes greater than 20 percent; or
- d. The habitat area is in an area of high tree blow down potential. In these cases the habitat area may be expanded an additional 50 feet on the windward side.

14.40.050060 Mitigation requirements.

A. Mitigation. Compensatory mitigation is required for all unavoidable alterations to fish and wildlife habitat conservation areas or their buffers. Mitigation of alteration to habitat areas shall achieve equivalent or greater biological functions. Mitigation shall address each functional attribute affected by the alteration to achieve functional equivalency or improvement on a per function basis. Mitigation elements to be addressed may include, but are not limited to: restoration of previously degraded areas and key habitat features, restoration of riparian vegetation communities to provide shade and large woody debris, addition of large woody debris, and installation of upland habitat features.

B. Type of mitigation required. In determining the extent and type of mitigation required, the department may consider all of the following:

- 1. The ecological processes that affect and influence habitat structure and function within the watershed or sub-basin;
- 2. The individual and cumulative effects of the action upon the functions of the critical area and associated watershed;
- 3. Observed or predicted trends regarding the gains or losses of specific habitats or species in the watershed, in light of natural and human processes;
- 4. The likely success of the proposed mitigation measures;
- 5. Effects of the mitigation actions on neighboring properties; and
- 6. Opportunities to implement restoration actions formally identified by an adopted shoreline restoration plan, watershed planning document prepared and adopted pursuant to Chapter 90.82 RCW, a salmonid recovery plan or project that has been identified on the Salmon Recovery Board Habitat Project List or by the Washington State Department of Fish and Wildlife as essential for fish and wildlife habitat enhancement.

C. Location. Compensatory mitigation shall be provided on-site or off-site in the location that will provide the greatest ecological benefit to the species and/or habitats affected and have the greatest likelihood of success. Mitigation shall occur as close to the impact site as possible, within the same sub-basin, and in a similar habitat type as the permitted

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alteration unless the applicant demonstrates to the satisfaction of the department through a watershed- or landscape-based analysis that mitigation within an alternative sub-basin of the same watershed would have greater ecological benefit.

D. Mitigation plans. When required by this chapter, the applicant shall submit a fish and wildlife habitat conservation area mitigation plan meeting the requirements of EMC 14.30.060. ~~A. All regulated development activities in critical fish and/or wildlife habitat areas and associated buffers shall be mitigated in the following order:~~

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1. ~~Avoiding the impact altogether by not taking a certain action or parts of actions.~~
2. ~~Minimizing impacts by limiting the degree or magnitude of the action and its implementation by using appropriate technology or by taking affirmative steps to reduce impacts.~~
3. ~~The following types of mitigation (no order of preference):~~
 - a. ~~Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;~~
 - b. ~~Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or~~
 - c. ~~Compensating for the impact by replacing or providing substitute resources or environments.~~
4. ~~Monitoring the impact and compensation and taking appropriate corrective measures. Monitoring reports are to be submitted to the department for a period of time, and upon a schedule, appropriate for the species or habitat of concern.~~
5. ~~Mitigation for individual actions may include a combination of the above measures.~~

B. Specific mitigation elements are to be discussed within a habitat assessment report, as defined in EMC 14.40.070, Appendix C. The habitat assessment report is to provide specific recommendations to reduce, eliminate, or mitigate for the adverse effects of the proposed activity. Potential measures include timing restrictions for all or some of the activities; clearing limitations; avoidance of specific areas; special construction techniques; hydraulic project approval (HPA) conditions; planting with native vegetation; habitat enhancement (i.e., fish passage barrier removal); best management practices; etc. If applicable, append a copy of the HPA, specifications for BMPs, or other documentation to support the implementation of the conservation measure.

C. The department may require an enhancement plan that provides mitigation for the impacts associated with any encroachment into the habitat area or associated buffer or a request for buffer averaging/reduction as set forth in EMC 14.40.060(C). The enhancement plan shall use native plant species that are indigenous to the project area and shall substantiate that an enhanced habitat area and/or buffer will improve the functional attributes of the affected area to provide additional protection for critical fish or wildlife habitat, wetlands, landslide hazard areas, or adjacent properties that may be affected by the proposal. At a minimum, the enhancement plan shall include detailed information on the following:

1. ~~Type of species proposed.~~
2. ~~Exact location of proposed enhancement area.~~
3. ~~Timing and schedule of planting.~~
4. ~~Schedule for monitoring and maintenance and any financial guarantees for these as required in EMC 14.10.080.~~
5. ~~Name, address, and telephone number of the person(s) responsible for the enhancement project.~~
6. ~~Any additional information required by the department.~~

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~~D. Mitigation of alterations to habitat areas shall achieve equivalent or greater biological functions and shall include mitigation for adverse impacts upstream and downstream of the development proposal site. Mitigation shall address each function affected by the alteration to achieve functional equivalency or improvement on a per function basis.~~

~~E. In cases in which it is determined that aquatic habitat mitigation is appropriate, the following shall apply:~~

- ~~1. Mitigation shall be provided on-site, except where the applicant demonstrates that on-site mitigation is not scientifically feasible or practical due to physical features of the site or where it can be demonstrated that greater functional and habitat values can be achieved through off-site mitigation; and~~
- ~~2. When mitigation cannot be provided on-site, it shall be provided in the immediate vicinity of and within the same watershed as the regulated activity. (Ord. 02-200 § 2).~~

14.40.060 — Buffer requirements.

~~A. Buffer Delineation. Buffers shall be required as set forth for each habitat type. The required buffers shall be delineated, both on a site plan or plat, and on the property prior to approval of any regulated activity.~~

~~B. Buffer Widths:~~

~~1. Riparian Areas and Ponds:~~

- ~~a. Riparian areas (streams and creeks) and ponds shall be managed through the use of buffers. Buffers shall be based upon the water type classification of the water body as established by the Department of Natural Resources stream typing classification system. Refer to Table 14.40.060 for the water types and the associated buffer requirements.~~
- ~~b. The required riparian buffer width is measured from the edge of the ordinary high water mark.~~
- ~~c. The required pond buffer width is measured from the edge of the ordinary high water mark (OHWM).~~
- ~~d. The required buffer shall be extended to include any adjacent regulated wetland(s), landslide hazard areas and/or erosion hazard areas and required buffers (see EMC 14.40.080(D) and (E), Figures 14.40-4 and 14.40-5).~~

~~2. Buffers for Other Critical Habitat Areas. Appropriate buffers for critical habitat areas not listed in Table 14.40.060 shall be determined on a case-by-case basis, based upon the needs of specific species or habitat area of study. The department will coordinate with the WDFW in these instances to determine an appropriate buffer width.~~

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Table 14.40.060
Buffer Requirements—

Water Type ^a	Water Body Criteria	Buffer Width ^b
Type S	All waters within their ordinary high water marks, inventoried as “shorelines of statewide significance or shorelines of the state” under Chapter 90.58 RCW and related rules (currently, Type 1 waters under state DNR rules).	150 feet landward from the OHWM
Type F1	All segments of natural waters (other than Type S waters) within the bankfull widths of defined channels or within lakes, ponds, or impoundments which provide habitat for or support any portion of the lifecycle of a critical fish species. These areas shall include: • Waters that are diverted for domestic use by more than 10 residential or camping units or by a public accommodation facility licensed to serve more than 10 persons, where such diversion is determined by DNR to be a valid appropriation of water and the only practical water source for such users; such waters shall be considered to be Type F waters upstream from the point of such diversion for 1,500 feet or until the drainage area is reduced by 50 percent, whichever is less; • Waters that are within a federal, state, local, or private campground having more than 10 camping units; provided, that the water shall not be considered to enter a campground until it	150 feet landward from the OHWM

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Water Type ¹	Water Body Criteria	Buffer Width ²
	reaches the boundary of the park lands available for public use and comes within 100 feet of a camping unit, trail or other park improvement; or 1. Waters that are diverted for use by federal, state, tribal, or private fish hatcheries. Such waters shall be considered to be Type F waters upstream from the point of diversion for 1,500 feet and tributaries if highly significant for protection of downstream water quality.	
Type F2	Type F1 stream adjacent to a landslide hazard area as set forth in Chapter 14.80 EMC.	150 feet landward from the OHWM or the minimum buffer distance required in Chapter 14.80 EMC, whichever is greatest
Type N1	All segments of natural waters within the bankfull widths of defined channels that are not Type S or F1 or F2 waters but are located within one quarter mile of the confluence with a Type S or F1 or F2 or are perennial streams or are physically connected by an above-ground channel system to downstream waters such that water or sediment initially delivered to such waters will eventually be delivered to a Type S or F1 or F2 water.	115 feet landward from the OHWM
Type N2	Seasonal non-fish-bearing natural waters within bankfull width of defined channels that are not Type S or F1 or F2 waters and are located more than one quarter mile upstream from the confluence with a Type S or F1 or F2 water.	65 feet landward from the OHWM
Type N3	Lakes or ponds that do not support any critical fish or wildlife species.	35 feet landward from the OHWM

¹—Water types are based upon the criteria established in WAC 222-16-030 and 222-16-031. Water types are mapped in the City's Critical Areas Atlas: Fish and Wildlife Habitat Areas—Stream Typing Maps and Fish and Wildlife Habitat Areas—Critical Fish Presence Maps.

²—There may be wetlands associated with ponds or streams that are regulated and which may have a required buffer greater than those listed in Table 14.40.060, e.g., an urban lake with no buffer requirement may have associated wetlands with 50 to 150 foot buffers.

C. Modification to Buffer Width Requirements. The standard buffer widths of subsection (B) of this section may be modified by averaging, reducing, or increasing as follows:

1. Buffer Averaging. Buffer width averaging may be proposed through submittal of a habitat assessment report. Buffer width averaging shall be allowed only when the applicant demonstrates all of the following:

- a. Buffer encroachment is unavoidable.
- b. The habitat area contains variations in sensitivity (both geological and biological) due to existing site characteristics.
- c. Buffer averaging will not adversely impact the structure and function of the habitat area.
- d. The buffer averaging is not inconsistent with other buffer requirements set forth under this title (e.g., wetlands, landslide hazard areas, etc.).
- e. The buffer averaging will not increase the risk of slope failure or downslope stormwater drainage impacts.
- f. The total buffer area after averaging is no less than the buffer area prior to the averaging.
- g. The minimum buffer width after averaging will not be less than 50 percent of the widths established in subsection (B) of this section.
- h. The averaging is accomplished within the project boundaries.

2. Buffer Width Reductions. A buffer width reduction may be proposed through submittal of a habitat assessment report. Buffer reductions of up to a maximum of 25 percent may be allowed when the applicant demonstrates the following circumstances:

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~~a. Buffer encroachment is unavoidable.~~

~~b. The buffer reduction will not result in an adverse impact to the species of study, any associated wetlands, or landslide hazard areas.~~

~~c. The buffer reduction will not increase the risk of slope failure or downslope stormwater drainage impacts.~~

~~d. The encroachment does not occur within landslide hazard area buffer or into the buffer of any associated wetlands.~~

~~e. The proposed buffer area is extensively vegetated, has less than 20 percent slopes, and the reduction will not result in adverse impact to the structure and function of the habitat area.~~

~~f. The acreage included in the buffer would substantially exceed the size of the habitat area.~~

~~g. The minimum buffer width will not be less than 75 percent of the total required width.~~

~~3. Buffer Width Increases. The department may require an increased buffer width when a larger buffer is necessary, based on site conditions, to protect habitat area functions and values. This determination shall be reasonably related to protection of the functions and values of the regulated habitat area. Such determination shall demonstrate any of the following:~~

~~a. A larger buffer is necessary to maintain viable populations of existing species or protect the existing functions of the habitat area;~~

~~b. The adjacent land is susceptible to severe erosion and erosion control measures will not effectively prevent adverse habitat impacts;~~

~~c. The adjacent land has minimal vegetative cover or slopes greater than 20 percent; or~~

~~d. The habitat area is in an area of high tree blow-down potential. In these cases the habitat area may be expanded an additional 50 feet on the windward side.~~

~~4. Where an application for a development permit, other than a site development permit, has not been submitted in association with a proposed forest practice activity, a deviation from the standard buffer, as set forth in subsections (C)(1) and (2) of this section, shall not be allowed. (Ord. 02-200 § 2).~~

14.40.070. Appendix.

APPENDIX A

HABITAT MANAGEMENT PLAN

A. A habitat management plan shall, at a minimum, include the following:

1. The general critical areas report requirements in EMC 14.20.060.
2. Identification of any endangered, threatened, sensitive, or candidate species that have a primary association with habitat on the project area;
3. Map showing the location of the ordinary high water mark and/or locations of wildlife habitat conservation area(s) and their buffers in accordance with EMC 14.40.050;
4. The vegetative, faunal, topographic, and hydrologic characteristics of the habitat conservation area;
5. A discussion of any federal, state, or local special management recommendations, including Washington Department of Fish and Wildlife habitat management recommendations, that have been developed for species or habitat located on or adjacent to the project area;
6. A detailed discussion of the direct and/or indirect potential impacts on the habitat conservation area by the project. Such discussion shall include a discussion of the ongoing management practices that will protect habitat after the project site has been developed;
7. The mitigation plan requirements of EMC 14.20.070 if the activity will result in unavoidable impacts to habitat conservation areas. Mitigation measures may include:
 - a. Prohibition or limitation of use and development activities within the habitat conservation area;
 - b. Retention of vegetation and/or re-vegetation of areas/habitats critically important to species;
 - c. Special construction techniques;
 - d. Implementation of erosion and sediment control measures;
 - e. Habitat restoration or enhancement (i.e., fish passage barrier removal);
 - f. Seasonal restrictions on construction activities on the subject property;
 - g. Clustering of development activities on the subject property; and/or
 - h. Any other requirements and/or recommendations from federal, state, or local special management recommendations, including the Washington State Department of Fish and Wildlife's habitat management guidelines.

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14.40.070 — Appendices.

A. Habitat Assessment Letters.

B. Habitat Assessment Studies.

C. Habitat Assessment Reports.

APPENDIX A

HABITAT ASSESSMENT LETTERS

A. The habitat assessment letter shall, at a minimum, include the following:

1. The information required in EMC 14.40.030(B)(2).
2. Documentation that the potential habitat is not present. Discuss the habitat features or types that are available as compared to the habitat features that define the potential habitat. Describe why potential restoration measures would not be feasible.
3. Documentation that potential species are not present. Note: a determination that a species is lacking based upon limited field investigation, occurring at an inappropriate time of the year for the species of study will not be

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~~acceptable. In such cases, the city will require separate confirmation of absence provided by the Washington Department of Fish and Wildlife.~~

~~B. Hold harmless clauses, disclaimers, and limitations are not allowed within a habitat assessment letter.~~

~~APPENDIX B~~

~~HABITAT ASSESSMENT STUDIES~~

~~A. The habitat assessment study shall, at a minimum, include the following:~~

- ~~1. The information required in EMC 14.40.030(B)(2).~~
- ~~2. Identify the presence of the habitat area or species on the site.~~
- ~~3. Identify and discuss how the project complies with the standards set forth in EMC 14.40.040.~~
- ~~4. Provide a detailed description of the proposed project. At a minimum, the following items should be included:~~
 - ~~a. A legal description (section, township, range) and vicinity map that clearly show the site and project area in relation to nearby waterbodies, sensitive habitats, etc.~~
 - ~~b. A site plan of the habitat area and associated buffer in relation to the proposed project area.~~
 - ~~c. Photographs, especially color copies, are useful to orient the reviewer to the project area. A combination of aerial or orthophotos and snapshots are ideal.~~
- ~~5. Describe the environmental baseline (current or pre-project) condition of the habitat and the project area. The baseline description should address all pertinent habitat parameters for the species.~~
- ~~6. Describe in detail the type and scope of development activity proposed:~~
 - ~~a. Describe the overall purpose of the project and a brief summary of project objectives.~~
 - ~~b. List all proposed project related construction activities and types of equipment. Provide a chronology of activities, timing of construction, hours of operation, phasing.~~
 - ~~c. Provide to scale plans that show where work is proposed relative to habitat areas and buffers.~~
 - ~~d. Quantify areas of vegetation removal, include clearing and grubbing, vegetation type.~~
 - ~~e. Describe proposed grading and filling or other earthwork, include specific BMPs for erosion, sedimentation, stormwater, and spill control. If appropriate, append the temporary erosion sediment control (TESC) plan, spill control plan, BMP specifications, etc.~~
 - ~~f. Provide stormwater treatment information including:~~
 - ~~i. Amount of new impervious surface;~~
 - ~~ii. Percent of surface and type of treatment for new and existing impervious surface;~~
 - ~~iii. Specify BMPs to treat for quality and quantity; and~~
 - ~~iv. Identify the receiving area/waterbody for each BMP, including overflow channels.~~

~~B. Hold harmless clauses, disclaimers, and limitations are not allowed within a habitat assessment study.~~

~~APPENDIX C~~

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HABITAT ASSESSMENT REPORTS~~

~~A. The applicant is advised to refer to the following guidance documents during the course of the habitat assessment report (HAR) preparation:~~

- ~~1. Washington Department of Fish and Wildlife Priority Habitat and Species Management Recommendations, May 1991 (or as hereafter amended), and supplemental documents including but not limited to:
 - a. Priority Habitats and Species List;
 - b. Management Recommendations for Washington's Priority Habitats: Oregon White Oak Woodlands;
 - c. Management Recommendations for Washington's Priority Habitats: Volume I Invertebrates; and
 - d. Management Recommendations for Washington's Priority Habitats: Volume III Amphibians and Reptiles.~~
- ~~2. Making Endangered Species Act Determinations of Effect for Individual or Grouped Actions at the Watershed Scale (NMFS 1996).~~
- ~~3. A Guide to Biological Assessments (NMFS revised March 23, 1999).~~
- ~~4. Biological Assessment Preparation and Review (USFWS March 1999).~~
- ~~5. NMFS Checklist for Documenting Environmental Baseline and Effects of Proposed Action(s) on Relevant Indicators.~~
- ~~6. Stream Survey Report Criteria, King County Department of Development and Environmental Services.~~

~~B. The following information must be included in every habitat assessment report:~~

- ~~1. Project Description. Describe in detail the type and scope of action proposed.
 - a. Describe the overall purpose of the project and a brief summary of project objectives.
 - b. List all proposed project related construction activities and types of equipment.
 - c. Provide to scale plans that show where work is proposed relative to sensitive areas and/or habitat.
 - d. Quantify areas of vegetation removal, include clearing and grubbing, vegetation type, replanting plans.
 - e. Provide a chronology of activities, timing of construction, phasing.
 - f. Describe proposed grading and filling or other earthwork, include specific BMPs for erosion, sedimentation, stormwater, and spill control. If appropriate, append the spill control plan, BMP specifications, etc.
 - g. Provide stormwater treatment information including:
 - i. Amount of new impervious surface;
 - ii. Percent of surface and type of treatment for new and existing impervious surface;
 - iii. Specify BMPs to treat for quality and quantity;
 - iv. Identify the receiving area/waterbody for each BMP, including overflow channels.~~

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h. Describe proposed in-water work (below OHWM or extreme high tide) and work over waterbodies, and potential for impacts to riparian or aquatic vegetation. Include conditions and work windows as described in the WDFW HPA. State clearly if the project does not include any in-water or over-water work.

2. Description of the Project Area. The following items should be addressed as appropriate:

a. Provide a legal description (section, township, range) and vicinity map that clearly shows the project in relation to nearby waterbodies, sensitive habitats, etc.

b. Date of field review(s) of project, credentials of personnel involved, and results of visit(s).

c. Describe the environmental baseline (current or pre-project) condition of the habitat and the project area. The baseline description should address all pertinent habitat parameters for the species.

d. Describe the project setting in terms of physiographic region, general topography, dominant habitat and vegetation type(s), aquatic resources, land use patterns, and existing disturbance levels from human activities, roadways, etc.

e. Include information about past and present activities in the area that relate to the species or its habitat and/or the proposed action. This could include information on adjacent development projects, past consultations with state or federal agencies, previously established conservation measures, or species management plans.

3. Critical Fish and Wildlife Species and Habitat Occurrence. The HAR must be based on current site-specific information about the species and its life history. Cite any relevant scientific literature or research findings. At a minimum, the following items should be addressed:

a. Cite species listings provided by NMFS, WDFW, and/or USFWS. Append a copy of the listing to the report. Species listings should be updated every six months.

i. Identify any state listed, federal or state proposed species (and candidate or species of concern if appropriate), and designated or proposed critical habitat that are known or have the potential to occur on-site or in the vicinity of the project area.

ii. Identify fish by ecologically significant unit (ESU).

b. Describe the species, its habitat requirements and ecology in general, and relate that to the local populations. A lengthy life history is not required, but enough information should be provided to adequately explain the potential impacts.

c. Describe the potential suitable habitat for the species found on-site or in the project vicinity and how local populations use it. Discuss the local status of the species as appropriate. Determine the likely level and type of use of the area by each species.

4. Analysis of Effects on Listed and Proposed Species and Designated and Proposed Critical Habitat. The HAR should provide a thorough analysis of, and a separate section addressing the potential direct, indirect, interrelated and interdependent, and cumulative effects of the action on the species and its habitat within the project area. The following items should be addressed:

a. Define the project area (area of potential impacts, both indirect and direct). The area of impact is usually larger than the project area or project vicinity (i.e., the river upstream and downstream from a bridge project, waterbodies receiving stormwater).

b. Describe how the environmental baseline (current or pre-project condition of the habitat in the project area) will be degraded, maintained or improved (restored). If appropriate, append the completed NMFS Checklist for Documenting Environmental Baseline and Effects of Proposed Action(s) on Relevant Indicators.

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e. ~~Direct Effects.~~ Describe and analyze the effects of the action that would directly affect the species. Include actions that would potentially remove or destroy habitat, displace or otherwise influence the species, either positively (beneficial effects) or negatively (adverse effects).

d. ~~Describe potential for impacts from disturbance (i.e., noise above ambient levels, sudden loud noises, increased human activity), from construction and continuing operation. Construction impacts would be considered a direct effect whereas operation noise impacts could be considered indirect effects as they occur later in time.~~

e. ~~Indirect Effects.~~ Describe any potential indirect impacts (those that occur later in time) such as impacts to future food resources or foraging areas, and impacts from increased long-term human access.

f. ~~Interrelated/Interdependent Effects.~~ Describe and analyze any potential effects from interdependent actions (actions that have no independent utility apart from the primary action) and interrelated actions (actions associated with the primary action and dependent upon that action for their justification) on the species or habitat that would not occur if not for the proposed action. Examples of these two effects include site clearing activities associated with new home construction (an interdependent effect), and increases in light, noise, and glare that occur as a result of land division (an interrelated effect).

g. ~~Cumulative Effects.~~ Identify to the extent possible those cumulative effects within the project area that are reasonably certain to occur.

h. ~~If species-specific recovery plans or management plans have been established by the U.S. Fish and Wildlife Service, WDFW, or National Marine Fisheries Service, address the project in terms of compliance and recommendations.~~

i. ~~For proposed species, analyze the potential for the project to jeopardize the continued existence of the species.~~

j. ~~The HAR must contain a distinct statement of the overall effect of the project on each species. It must also provide supporting evidence to justify the effect determination (for listed species) or jeopardy call (for proposed species). The determination must be consistent throughout and worded correctly. See NMFS or USFWS guidance for specific wording for each status.~~

5. ~~Recommended Conservation Measures.~~ The HAR should describe components of the project that may benefit or promote the recovery of listed species and are included as an integral part of the proposed project. These conservation (or mitigation) measures serve to minimize or compensate for project effects on the species under review. The following items should be addressed:

a. ~~Provide specific recommendations, as appropriate, to reduce or eliminate the adverse effects of the proposed activity. Potential measures include: timing restrictions for all or some of the activities; clearing limitations; avoidance of specific areas; special construction techniques; HPA conditions; replanting with native vegetation; potential of habitat enhancement (i.e., fish passage barrier removal); best management practices, etc.~~

b. ~~If applicable, append a copy of the HPA, specifications for BMPs, or other documentation to support the implementation of the conservation measure.~~

c. ~~Include a description of proposed monitoring of the species, its habitat, and mitigation effectiveness.~~

6. ~~Conclusions and Effect Determinations.~~

a. ~~Summarize the proposed project and objectives, and restate the listed species that may occur near the project and the expected level of use.~~

b. ~~State what conclusions regarding potential impacts to the species discussed can be supported from the information presented in the report. The following items should be addressed:~~

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i. ~~A determination of effect must be made for each identified critical fish and wildlife species or habitat area. For each, only one of the following determinations of effect is acceptable:~~

(A) ~~No Effect. The appropriate finding to make when the direct or indirect impacts of a project will have no effect of any kind, negative or beneficial, upon a species or habitat area;~~

(B) ~~May Affect, Not Likely to Adversely Affect. The appropriate finding to make when the direct or indirect effects of a project are insignificant, discountable, or beneficial; or~~

(C) ~~Likely to Adversely Affect. The appropriate finding to make when the direct or indirect effects of a project may adversely impact a species or habitat area and the effects are not insignificant.~~

ii. ~~Determinations of “no effect” or “may affect, not likely to adversely affect” may not be based upon the argument that species will be displaced to other suitable habitat or that (based upon a limited number of surveys) species are not known to occur. The failure to provide site-specific surveys at the appropriate time of the year for the species of study will result in the department assuming a worst-case scenario in regards to project-related impacts.~~

e. ~~For any proposed species or proposed critical habitat discussed, the conclusions should indicate whether the proposed project is likely to jeopardize the continued existence of the species (as in the entire species, not individual(s)), or adversely modify the proposed critical habitat.~~

7. ~~References and Appendices. Refer to all appropriate project documents, particularly if the assessment depends upon information located elsewhere (e.g., in an EIS). Applicants may consider providing the department with copies of pertinent documents along with the HAR. At a minimum, the following items should be addressed:~~

a. ~~Provide citations for other information referred to in the HAR, such as current literature and personal contacts used in the assessment. Include name, affiliation, and date.~~

b. ~~Include as appropriate any photographs, survey methods, protocols, and results. Do not provide specific information regarding the exact location of state- or federally-listed species within the HAR document. Federal and state restrictions exist regarding the release of such information.~~

C. ~~Hold harmless clauses, disclaimers, and limitations are not allowed within a habitat assessment report. (Ord. 02-200 § 2).~~

14.40.080 — Figures.

A. ~~Figure 14.40-1, Local Importance Priority Oregon White Oak Woodlands.~~

B. ~~Figure 14.40-2, Examples of Potential Critical Fish and Wildlife Habitat Areas.~~

C. ~~Figure 14.40-3, Critical Fish and Wildlife Habitat Area Review Procedures.~~

D. ~~Figure 14.40-4, Riparian Buffer Extension Adjacent to Wetland.~~

E. ~~Figure 14.40-5, Riparian Buffer Extension Landslide Hazard Buffer Area.~~

(Ord. 02-200 § 2).

The Edgewood Municipal Code is current through Ordinance 17-498, passed April 11, 2017.

Chapter 14.50

~~AQUIFER RECHARGE AND WELLHEAD PROTECTION AREAS~~CRITICAL AQUIFER RECHARGE
AREAS

Sections:

- 14.50.010 Purpose.
 14.50.020 ~~Aquifer recharge and wellhead protection~~Critical aquifer recharge area identification areas.
 14.50.030 ~~Aquifer recharge and wellhead protection~~Critical aquifer recharge area review procedures.
 14.50.040 ~~Aquifer recharge and wellhead protection~~Critical aquifer recharge area standards.

14.50.010 Purpose.

The purpose of this chapter is to protect critical aquifer recharge ~~and wellhead protection areas~~areas from degradation or depletion resulting from new or changed land use activities. Due to the exceptional susceptibility and/or vulnerability of groundwater underlying aquifer recharge areas to contamination and the importance of such groundwater as sources of public water supply, it is the intent of this chapter to safeguard groundwater resources and wellhead protection areas by mitigating or precluding future discharges of contaminants from new land use activities. (Ord. 02-200 § 2).

14.50.020 ~~Aquifer recharge and wellhead protection areas~~Critical aquifer recharge area identification.

A. General. ~~Aquifer recharge and wellhead protection areas~~Critical aquifer recharge areas are areas that have a critical recharging effect on groundwater used for potable water supplies and/or that demonstrate a high level of susceptibility or vulnerability to groundwater contamination from land use activities. These areas include the following:

1B. Aquifer Recharge Areas. The boundaries of the two highest DRASTIC zones that are rated 180 and above on the DRASTIC index range, as identified in Map of Groundwater Pollution Potential, Edgewood, Washington, National Water Well Association, U.S. Environmental Protection Agency; ~~and~~

C2. Wellhead Protection Areas. Wellhead protection areas that lie within the 10-year time of travel zone boundary of a group A public water system well, as delineated by the water system purveyor or its designee, pursuant to WAC 246-290-135; ~~and: (Ord. 02-200 § 2);~~

3. Sole Source Aquifers. Sole source aquifers are areas that have been designated by the U.S. Environmental Protection Agency pursuant to the Federal Safe Water Drinking Act. As of the effective date of this title, there are no designated sole source aquifers within city limits.

14.50.030 ~~Aquifer recharge and wellhead protection~~Critical aquifer recharge area review procedures.

A. General Requirements:

1. The city's ~~Critical Areas Atlas—Aquifer Recharge and Wellhead Protection Area Map~~critical aquifer recharge area map provides an indication of where ~~aquifer recharge and wellhead protection~~critical aquifer recharge areas are located within the city and the map is updated as necessary.

~~2. The department will complete a review of the aquifer recharge area map for any development proposal to determine whether the proposed project area for a regulated activity falls within an aquifer recharge or wellhead protection area.~~

~~3. When the department's maps or sources indicate that the proposed project area for a regulated activity is located within an aquifer recharge or wellhead protection area, the department shall require an aquifer recharge and wellhead protection area review as set forth in this chapter.~~

42. Any proposed development located within ~~an aquifer recharge or wellhead protection~~protection critical aquifer recharge area shall comply with the standards set forth in EMC 14.50.040.

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AQUIFER RECHARGE AREAS

~~35.~~ Any hazardous uses, as defined in EMC 14.50.040, shall require the submittal of a hydrogeologic assessment, as set forth in subsection (B) of this section.

~~46.~~ The department may waive some of the critical area protective measure provisions contained in EMC 14.10.080.

B. Hydrogeologic Assessment.

1. The hydrogeologic assessment shall be prepared, signed, and dated by a state licensed geologist/hydrogeologist.
2. The hydrogeologic assessment shall be submitted in the form of a report detailing the subsurface conditions, the design of a proposed land use action, and the facilities operation which indicates the susceptibility and potential for contamination of groundwater supplies. The hydrogeologic assessment shall, at a minimum, include the general critical area report requirements of EMC 14.20.060 in addition to the following:
 - a. Information sources;
 - b. Geologic setting – includes well logs or borings used to identify information;
 - c. Background water quality;
 - d. Groundwater elevations;
 - e. Location/depth to perched water tables;
 - f. Recharge potential of facility site (permeability/transmissivity);
 - g. Groundwater flow direction and gradient;
 - h. Current available data on wells located within one-quarter mile of the site;
 - i. Current available data on any spring within one-quarter mile of the site;
 - j. Surface water location and recharge potential;
 - k. Water source supply to facility (e.g., high capacity well);
 - l. Any sampling schedules necessary;
 - m. Discussion of the effects of the proposed project on the groundwater resource;
 - n. Discussion of potential mitigation measures, should it be determined that the proposed project will have an adverse impact on groundwater resources; and
 - o. Any other information as required by the TPCD, including information required under Washington Department of Ecology Publication 97-30.

C. Storage Tank Permits. In addition to the requirements set forth in this title, the following agencies also have the authority to regulate the installation, repair, replacement, or removal of underground storage tanks:

1. The Pierce County Fire Prevention Bureau regulates and authorizes permits for underground storage tanks, pursuant to the International Fire Code (Article 79) and this chapter.
2. The Washington Department of Ecology regulates and authorizes permits for underground storage tanks (Chapter 173-360 WAC).

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Chapter 14.50 ~~AQUIFER RECHARGE AND WELLHEAD PROTECTION AREAS~~ CRITICAL AQUIFER RECHARGE AREAS

3. The TPCHD regulates and authorizes permits for the removal of underground storage tanks (Pierce County Code, Chapter 8.34). (Ord. 02-200 § 2).

14.50.040 ~~Aquifer recharge and wellhead protection~~ Critical aquifer recharge area standards.

A. General. All regulated activities that are not exempt or prohibited under the provisions of this chapter shall ensure sufficient groundwater recharge. In order to achieve sufficient groundwater recharge, the applicant shall comply with city's adopted stormwater manual (Chapter 13.05 EMC) and demonstrate that the total post-development infiltration rate for the project area will be equal to or better than the predevelopment rate.

B. Prohibited Uses. Landfills (other than inert and demolition landfills), Class I, III, and IV underground injection wells, metals mining, wood treatment facilities, pesticide manufacturing, petroleum refining facilities (including distilled petroleum facilities), ~~and the storage of large volumes of petroleum products, and other uses or activities determined by the department to have a significant adverse impact on ground water~~ are prohibited within ~~aquifer recharge and wellhead protection critical aquifer recharge~~ areas.

C. Exemptions. In addition to the general exemptions listed in EMC 14.20.030, the following uses or activities are exempt from the requirements of this chapter:

1. Sewer lines and appurtenances;

2. Biosolids and sludge land application sites; provided, that these activities comply with the requirements established in Chapters 173-200, 173-216, and 173-304 WAC; and

3. Single-family and two-family dwellings and associated accessory structures.

D. Agricultural Activities. New agricultural activities that do not involve hazardous substance handling or application are allowed within an aquifer recharge or wellhead protection area subject to the following:

1. The applicant is required to submit a farm management plan prepared by the USDA, NRCS, Pierce County Conservation District, or Washington State University, Cooperative Extension Office, that certifies that water quality and quantity within the aquifer recharge area is maintained. The farm management plan shall at a minimum address the following:

- a. The limits of the proposed agricultural activities.
- b. The proposed scope of agricultural activities, including the use of any pesticides, fertilizers, or other chemicals.
- c. The existing nitrate levels on the site and any proposed increases in nitrate levels.

2. Integrated pest management (IPM) practices for pest control and best management practices (BMPs) for the use of fertilizers, as described by the Washington State University, Pierce County Cooperative Extension Office, shall be utilized.

3. Nitrate levels at down-gradient property line shall not exceed 2.5 mg/L or, if the background nitrate concentration exceeds 2.5 mg/L, that the concentration will not be increased more than 0.1 mg/L.

4. Additional protective measures may be required if deemed necessary by the department or TPCHD to protect public health or safety.

D. Nonhazardous Uses. Subdivision of land as defined in EMC Title 16, residential structures housing three or more units and all commercial and industrial sites or activities that do not include or involve hazardous substance processing or handling in ~~an aquifer recharge and/or wellhead protection~~ protection critical aquifer recharge area are allowed subject to the following standards:

1. Stormwater quality treatment and flow control shall be provided in conformance with the city's adopted stormwater management manual.

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Chapter 14.50 ~~AQUIFER RECHARGE AND
WELLHEAD PROTECTION AREAS~~ CRITICAL
AQUIFER RECHARGE AREAS

2. Floor drains shall not be allowed to drain to the stormwater system and must be designed and installed to meet the Uniform Plumbing Code (UPC) Section 303.
3. If any roof venting carries contaminants, then the portion of the roof draining from this area must go through pretreatment pursuant to UPC Section 304(b).
4. All nonresidential vehicle washing must be self-contained or be discharged to a sanitary sewer system, if approved by the sewer utility, and is subject to UPC Sections 708 and 711.
5. Integrated pest management (IPM) practices for pest control and best management practices (BMPs) for the use of fertilizers as described by the Washington State University, Pierce County Cooperative Extension Office, shall be utilized.
6. For new or changes in regulated activities served by on-site sewage systems, the applicant must demonstrate to the TPCHD that nitrate levels at the down-gradient property line will not exceed 2.5 mg/L or that if the background nitrate concentration exceeds 2.5 mg/L the concentration will not be increased more than 0.1 mg/L.
7. Additional protective measures may be required if deemed necessary by the department or TPCHD to protect public health or safety.

E. Hazardous Uses – General. Hazardous substance processing or handling, hazardous waste treatment and storage facilities, animal containment areas, and solid waste facilities that require a solid waste handling permit from the TPCHD, requiring approval from the city, shall be allowed only in ~~an aquifer recharge and/or wellhead protection~~ protection critical aquifer recharge area subject to review and approval of a hydrogeologic assessment by the department and review by the TPCHD. The department has the authority to apply whatever standards deemed necessary to mitigate any negative impacts that may be associated with the proposed development and will consider comments by TPCHD.

F. Hazardous Uses – Storage Tanks. In addition to the requirement to submit a hydrogeologic assessment, the following standards apply to storage tanks in ~~an aquifer recharge and/or wellhead protection~~ protection critical aquifer recharge area:

1. Underground Tanks. All new underground storage facilities used or to be used for the underground storage of hazardous substances or hazardous wastes shall be designed and constructed so as to:
 - a. Prevent releases due to corrosion or structural failure for the operational life of the tank;
 - b. Be protected against corrosion, constructed of noncorrosive material, steel clad with a noncorrosive material, or designed to include a secondary containment system to prevent the release or threatened release of any stored substance;
 - c. Use material in the construction or lining of the tank which is compatible with the substance to be stored; and
 - d. The installation of underground storage tanks shall also be subject to other state and local permit requirements.
2. Aboveground Tanks.
 - a. No new aboveground storage facility or part thereof shall be fabricated, constructed, installed, used, or maintained in any manner which may allow the release of a hazardous substance to the ground, groundwater, or surface waters of ~~Edgewood the city~~ within ~~an aquifer recharge area~~ a critical aquifer recharge area.
 - b. A new aboveground tank that will contain a hazardous substance will require both a double-walled tank and a secondary containment system separate from the tank that will hold 110 percent of the tank's capacity.

Chapter 14.50 ~~AQUIFER RECHARGE AND~~
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The secondary containment system or dike system must be designed and constructed to contain material stored in the tank(s). (Ord. 16-482 § 2 (Exh. C); Ord. 02-200 § 2).

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Chapter 14.60

VOLCANIC HAZARD AREAS

Sections:

- 14.60.010 Purpose.
- 14.60.020 Volcanic hazard areas.
- 14.60.030 Volcanic hazard area review procedures.
- 14.60.040 Volcanic hazard area standards.

14.60.010 Purpose.

At over 14,411 feet high, Mount Rainier dominates the skyline of the southern Puget Sound region. This glacier-clad mountain is a dormant volcano capable of generating large floods and lahars which have historically reached the floors of the lowlands south of the city of Seattle and out to Commencement Bay in the Port of Tacoma, spewing ash from pyroclastic eruptions. The purpose of this chapter is to promote the public health, safety, and general welfare of the citizens of Edgewood by providing standards that minimize the loss of life that may occur as a result of volcanic events emanating from Mount Rainier. (Ord. 02-200 § 2).

14.60.020 Volcanic hazard areas.

A. General. Volcanic hazard areas are areas subject to pyroclastic flows, lava flows, and inundation by debris flows, mudflows, or related flooding resulting from geologic and volcanic events on Mount Rainier.

B. Volcanic Hazard Area Categories. Volcanic hazard areas are areas that have been historically inundated by Case I, Case II, or Case III lahars or other types of debris flow; affected by pyroclastic flows, pyroclastic surges, lava flows, or ballistic projectiles in future eruptions; or are located in other drainages expected to be inundated by a future Case I, Case II, or Case III debris flow. Volcanic hazard areas are classified into the following categories:

1. Inundation Zone for Case I Lahars. Areas that could be affected by cohesive lahars that originate as enormous avalanches of weak chemically altered rock from the volcano. Case I lahars can occur with or without eruptive activity. The average reoccurrence rate for Case I lahars on Mount Rainier is about 500 to 1,000 years.
2. Inundation Zone for Case II Lahars. Areas that could be affected by relatively large noncohesive lahars, which most commonly are caused by the melting of snow and glacier ice by hot rock fragments during an eruption, but which can also have a noneruptive origin. The average time interval between Case II lahars from Mount Rainier is near the lower end of the 100- to 500-year range, making these flows analogous to the so-called "100-year flood" commonly considered in engineering practice.
3. Inundation Zone for Case III Lahars. Areas that could be affected by moderately large debris avalanches or small noncohesive lahars, glacial outburst floods, or other types of debris flow, all of noneruptive origin. The average time interval between Case III lahars at Mount Rainier is about one to 100 years.
4. Pyroclastic Flow Hazard Zone. Areas that could be affected by pyroclastic flows, pyroclastic surges, lava flows, and ballistic projectiles in future eruptions. During any single eruption, some drainages may be unaffected by any of these phenomena, while other drainages are affected by some or all phenomena. The average time interval between eruptions of Mount Rainier is about 100 to 1,000 years.

C. Time Travel Zones. The ability to evacuate people from within a volcanic hazard area correlates to the distance from the source of an event (i.e., those areas closest to the event will have less time to evacuate than those areas farther away from the source of an event). The amount of time that is anticipated for a debris flow, lahar, flood, or avalanche to travel geographically has been classified into the following time travel zones:

1. Time Zone A. Time Zone A is an estimated one-hour travel distance from the source of the event.
2. Time Zone B. Time Zone B is an estimated one and one-half hour travel distance from the source of the event.
3. Time Zone C. Time Zone C is an estimated two-hour travel distance from the source of the event.

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4. Time Zone D. Time Zone D is an estimated two hours or greater travel distance from the source of the event. (Ord. 02-200 § 2).

14.60.030 Volcanic hazard area review procedures.

A. The City's Critical Areas Atlas – Volcanic Hazard Area Map provides an indication of where volcanic hazard areas are located within the city.

B. The department will complete a review of the volcanic hazard area maps for any development proposal to determine whether the proposed project area for a regulated activity falls within a volcanic hazard area.

C. When the department's maps or sources indicate that the proposed project area for a regulated activity is located within a volcanic hazard area, the department shall apply the standards for regulated activities in volcanic hazard areas, as set forth in EMC 14.60.040.

~~D. Title and land division notification shall be required, as set forth in EMC 14.10.080(C). (Ord. 02-200 § 2).~~

14.60.040 Volcanic hazard area standards.

The following standards apply within the inundation zones for Case I, II, and III lahars and within the pyroclastic flow hazard zone (refer to Table 14.60.040):

A. Bonus densities, as set forth in EMC 18.90.080, Housing incentives program, shall be prohibited.

B. All ~~essential facilities and hazardous~~critical facilities, as defined in EMC 14.10.060, shall be prohibited, except sewer collection facilities and any other utilities that are located underground or not likely to cause harm to people or the environment if inundated by a lahar.

C. Special occupancy structures, as defined in EMC 14.10.060, are subject to the following:

1. Time Travel Zone A. Special occupancy structures located within the Time Travel Zone A area shall be limited to a maximum ~~100-person~~100-person occupancy.
2. Time Travel Zone B. Special occupancy structures located within the Time Travel Zone B area shall be limited to a maximum ~~500-person~~500-person occupancy.
3. Time Travel Zone C. Special occupancy structures located within the Time Travel Zone C area shall be limited to a maximum ~~1,000-person~~1,000-person occupancy.
4. Time Travel Zone D. Special occupancy structures located within the Time Travel Zone D area shall be limited to a maximum ~~5,000-person~~5,000-person occupancy.

Table 14.60.040 Volcanic Hazard Area Standards

Facility/Occupancy List	Case I Lahar Inundation Zone	Case II Lahar Inundation Zone	Case III Lahar Inundation Zone	Pyroclastic Flow Hazard Zone
Bonus Densities ⁽¹⁾	Not Allowed	Not Allowed	Not Allowed	Not Allowed
Essential-Critical Facilities ⁽²⁾	Not Allowed	Not Allowed	Not Allowed	Not Allowed
Special Occupancies ⁽²⁴⁾	In Time Travel Zone A – Limited to 100 person occupant load. In Time Travel Zone B – Limited to 500 person occupant load. In Time Travel Zone C – Limited to 1,000 person occupant load. In Time Travel Zone D – Limited to 5,000 person occupant load.			

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Facility/Occupancy List	Case I Lahar Inundation Zone	Case II Lahar Inundation Zone	Case III Lahar Inundation Zone	Pyroclastic Flow Hazard Zone
Other Occupancies	No Limitation	No Limitation	No Limitation	No Limitation

(1) Bonus density as set forth in EMC 18.90.080, Housing incentives program.

(2) Essential facility as defined in EMC ~~14.60.040(B)~~; 14.10.060.

~~(3) Hazardous facility as defined in EMC 14.60.040(B).~~

~~(3.4)~~ Special occupancy structures as defined in EMC 14.10.060; ~~14.60.040(C)~~.

(Ord. 02-200 § 2).

The Edgewood Municipal Code is current through Ordinance 17-498, passed April 11, 2017.

Chapter 14.70 FLOOD HAZARD AREAS

Sections:

- 14.70.010 Purpose.
- 14.70.020 Flood hazard areas.
- 14.70.030 Flood hazard area review procedures.
- 14.70.040 Flood hazard area standards.
- 14.70.050 Appendices.
- ~~14.70.060 Figures.~~

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14.70.010 Purpose.

The purpose of this chapter is to promote the public health, safety, and general welfare of the citizens of Edgewood. The standards contained in this chapter are intended to minimize public and private losses due to flood conditions in flood hazard areas and provide special criteria necessary for regulated activities located within flood hazard areas of the city. The following statements describe the purpose of this chapter:

- A. Protect human life and health;
- B. Minimize expenditure of public money and costly flood control projects;
- C. Minimize the need for rescue and relief efforts associated with flooding;
- D. Minimize prolonged business interruptions;
- E. Minimize damage to public infrastructure, facilities and utilities;
- F. Minimize damage to critical fish and wildlife habitat areas;
- G. Minimize net loss of ecological functions of floodplains;
- H. Ensure that potential buyers are notified that property is in a flood hazard area;
- I. Ensure that those who occupy flood hazard areas assume responsibility for their actions; and
- J. Qualify Edgewood for participation in the National Flood Insurance Program, thereby giving the citizens of Edgewood the opportunity to purchase flood insurance with particular emphasis to those in flood hazard areas. (Ord. 02-200 § 2).

14.70.020 Flood hazard areas.

Edgewood regulates the following flood hazard areas:

- A. Potential Flood Hazard Areas.
 - 1. Potential flood hazard areas, as depicted on the Critical Areas Atlas – Flood Hazard Area Map, include:
 - a. Detailed Study Areas.
 - i. FEMA Flood Insurance Rate Map and Floodway Map AE and AH zones.
 - ii. Areas within 300 feet horizontal distance from the base flood elevation established for the mapped AE and AH zones (~~see EMC 14.70.060(A), Figure 14.70-1~~).
 - iii. Areas within five feet of vertical height from the base flood elevation established for the mapped AE and AH zones.

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- b. Unstudied Areas. FEMA Flood Insurance Rate Map A zones and shaded X zones, and areas within 300 feet horizontal distance from said mapped areas ~~(see EMC 14.70.060(B), Figure 14.70-2).~~
- c. Natural Waters/Watercourse. Areas within five feet of vertical height above the ordinary high water mark of an identified natural watercourse ~~(see EMC 14.70.060(C), Figure 14.70-3).~~
- d. Groundwater Flooding Areas. Areas within 300 feet horizontal distance from a mapped groundwater flooding area ~~(see EMC 14.70.060(D), Figure 14.70-4).~~
- e. Potholes. Areas not identified as a mapped flood hazard area as described above, but within 10 feet of vertical relief from the bottom of an identified pothole or within two feet of vertical relief of a potential surface water spillway or other type of outlet ~~(see EMC 14.70.060(E) and (F), Figures 14.70-5 and 14.70-6).~~ Potholes may be identified by city topographic mapping, field survey, or site inspections.
- f. Channel Migration Zones (CMZs). Channel migration zones shall apply only to those watercourses specifically identified by the city or listed in subsection (B)(4) of this section. In those areas where detailed CMZ studies have been completed and accepted by the department, additional horizontal and vertical review threshold criteria (i.e., 300 feet horizontal and five feet vertical) shall not apply ~~(see EMC 14.70.060(G), Figure 14.70-7).~~

2. The Critical Areas Atlas – Flood Hazard Areas Map may not show all potential flood hazard areas that may be necessary for a specific site analysis. The department may make interpretations, where needed, as to the approximate location of the boundaries of potential flood hazard areas. When there is a conflict between the elevations and the mapped potential flood hazard area boundaries, the elevations shall govern.

3. Where there is insufficient information shown on the potential flood hazard area maps, the department may require the applicant to verify that the site is out of the flood hazard area using the flood hazard area review procedures set forth in EMC 14.70.030.

B. Floodway. A floodway is an extremely hazardous area due to the depth and/or velocity of floodwaters, which carry debris, potential projectiles, and have erosion potential ~~(see EMC 14.70.060(H), Figure 14.70-8).~~ The following areas are regulated by the city as floodways:

- 1. Regulatory Floodway. Regulatory floodway designated by flood hazard area maps.
- 2. Deep and/or Fast Flowing Water Areas. Areas of deep and/or fast flowing water shall be regulated as a floodway. Based on the criteria set forth in EMC 14.70.030(E), the department shall make the determination after review and approval of applicant's analysis of whether the project site falls within the floodway area based on deep and/or fast flowing waters ~~(see EMC 14.70.060(I), Figure 14.70-9).~~
- 3. Potholes and Shaded X Zones. That portion of a pothole and B zone area that is three feet or greater in depth shall be regulated as a floodway ~~(see EMC 14.70.060(J), Figure 14.70-10).~~
- 4. Channel Migration Zones (CMZs).
 - a. Channel migration zones shall be regulated as a floodway.
 - b. Channel migration zones are equivalent to the base flood elevation limits (i.e., 100-year floodplain limits).

C. Flood Fringe. All areas subject to inundation by the base flood, but outside the limits of the floodway as set forth in subsection (B) of this section. Those portions of the A, AE, AH, and shaded X zones not defined as floodway, and that portion of a pothole and FEMA shaded X zone area that is between zero feet (base flood elevation) and three feet in depth shall be regulated as a flood fringe.

D. Other Areas of Special Flood Hazard.

1. Groundwater Flooding Areas. Groundwater flooding areas are those areas identified by Edgewood and shown on flood hazard maps and are subject to flood inundation from subsurface waters that result from a fluctuation of the groundwater table. Groundwater flooding areas shall be regulated as a floodway or flood fringe pothole.

2. Natural Waters/Watercourse. Natural waters/watercourse as identified on city topographic, planimetric or orthophoto maps, WDNr stream classification maps, USGS quadrangle maps, or other source maps that are not identified as a flood hazard area on the FEMA maps. That portion of the natural watercourse located between the ordinary high water mark and a topographic elevation five feet above the ordinary high water mark shall be regulated as a floodway or flood fringe. If the applicant chooses to accept the five-foot topographic elevation line above the ordinary high water mark as the base flood elevation (i.e., floodplain elevation limits), a flood study shall not be required for a natural water/watercourse.

3. Frequently Flooded Areas. See EMC 14.70.030(A)(9) as the areas defined by this section. (Ord. 17-492 § 2 (Exh. A); Ord. 02-200 § 2).

14.70.030 Flood hazard area review procedures.

A. General Requirements.

1. The city's Critical Areas Atlas – Flood Hazard Area Map provides an indication of where potential flood hazard areas are located within the city. The actual presence or location of a flood hazard area shall be determined using the procedures and criteria contained in this chapter.

2. The department will complete a review of the flood hazard area maps, and other source documents, for any development proposal to determine whether the proposed project area for a regulated activity falls within a potential flood hazard area. When there is a conflict between the elevations and the mapped 100- or 500-year floodplain or floodway boundaries, the elevations shall govern. In the instance where base flood elevation data has not been provided within a mapped A zone, the department shall obtain, review, and reasonably utilize any base flood elevation and floodway data available from a federal, state, or other source to complete their review.

3. When the department's maps or sources indicate that the proposed project area for a regulated activity is or may be located within a potential flood hazard area (except for coastal flood hazard areas), the department shall require a flood boundary verification survey as outlined in subsection (C) of this section, and may require a flood study as outlined in subsection (D) of this section, a deep and/or fast flowing water analysis as outlined in subsection (E) of this section, and/or a zero-rise analysis as outlined in subsection (F) of this section.

4. Any proposed development located within a flood hazard area shall comply with the flood hazard area standards set forth in EMC 14.70.040.

5. Prior to approval of any proposed flood hazard area development, all necessary permits from those governmental agencies from which prior approval is required by federal or state law, including but not limited to Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334, must be provided to the city by the applicant.

6. A FEMA letter of map amendment (LOMA) or letter of map revision (LOMR) shall not be submitted to FEMA until review and approval has been granted by the department. The city shall not recognize any LOMA or LOMR as an amendment to the department's flood hazard maps unless the department has granted prior approval.

7. Unless otherwise stated in this chapter, the critical area protective measure provisions contained in EMC 14.10.080 shall apply.

8. The Federal Emergency Management Agency (FEMA) administers the nation's floodplain management program. FEMA has identified some of the flood prone areas in the city; however, it is generally recognized that FEMA's Flood Insurance Rate Maps (FIRMs) may not accurately reflect the degree or frequency of flooding within all areas of the city. Therefore, information available through FEMA may not meet best available science criteria and cannot be used exclusively to address frequently flooded areas.

9. The city has determined that the following documents and sources are the most current and accurate information concerning frequently flooded areas within the city, and therefore represent best available science:

- a. The city's Surface Water Management Plan, 1997, or as amended thereafter.
- b. Aerial photographs of the city, especially those taken in wintertime 1996 and 1997.
- c. The city's two-foot elevation contour mapping performed by Nies Mapping Group, Inc., 1999, or as subsequently updated.
- d. Relevant and verifiable information from the city's Capacity Analysis Technical Review AdHoc Committee draft report, 2000.
- e. Relevant and verifiable government and citizen photographs, notes, observations, etc., regarding historic ponding/flooding levels, including but not limited to the City of Edgewood Potholes Water Level Monitoring 2006-2007 report prepared by Robinson Engineers, LLC.
- f. Relevant and verifiable information available through Pierce County.
- g. Relevant and verifiable information available through FEMA.

10. Flooding conditions within the city generally fall into three distinct hydrologic settings: (a) upland areas within enclosed depressions, (b) streams that flow off the upland areas, and (c) valley lowlands. Accordingly, the city manages frequently flooded areas within these three zones, as described below:

- a. Upland Areas Within Enclosed Depressions. From the above list use the historic ponding elevation, determined by subsection (A)(9) of this section, or the FEMA 100-year base flood elevation, whichever is highest.
- b. Streams Which Flow Off the Upland Areas. From the above list use the historic flood elevation, determined by subsection (A)(9) of this section, or the FEMA 100-year base flood elevation, whichever is highest.
- c. Valley Lowlands. From the above list use the historic flood elevation determined by subsection (A)(9) of this section, or the FEMA 100-year base flood elevation, whichever is highest.

11. The city will provide local flood information to FEMA, and request FEMA's assistance in accurately mapping and evaluating frequently flooded areas.

12. Warning and Disclaimer of Liability. The degree of flood protection required by this chapter is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by manmade or natural causes. This chapter does not imply that land outside frequently flooded areas or uses permitted within such areas will be free from flooding or flood damages. This chapter shall not create liability on the part of city, any officer or employee thereof, or the Federal Insurance Administration, for any flood damages that result from reliance on this chapter or any administrative decision lawfully made hereunder.

B. Channel Migration Zone Study.

1. In areas where Edgewood has not conducted a detailed channel migration zone study, an applicant may submit an independent channel migration zone study to demonstrate that the channel migration zone limits for those watercourses listed in EMC 14.70.020(B)(4) are located inside the 100-year floodplain limits.
2. The channel migration zone study shall be prepared, signed, and dated by a professional engineer or professional geologist with at least five years of experience in fluvial geomorphology, river dynamics, or geotechnical engineering.

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3. The channel migration zone study shall, at a minimum, contain the information set forth in EMC 14.70.050, Appendix B.

4. The department shall review the channel migration zone study and either accept the new channel migration zone limits or reject the study and require the use of the 100-year floodplain limits. Once the department has reviewed and approved the channel migration zone study, the applicant shall be required to provide a flood boundary verification survey, as outlined in subsection (C) of this section, utilizing the newly established channel migration zone limits as the floodway limits.

C. Flood Boundary Verification Survey.

1. A flood boundary verification survey that delineates the horizontal and vertical limits of the base flood elevation shall be submitted to the department when the department's maps or sources indicate that the proposed project area for a regulated activity is located within a potential flood hazard area.

a. Where a base flood elevation has not been determined, a flood study shall be required pursuant to subsection (D) of this section.

b. A base flood elevation that has been established through a detailed flood study accepted by the department may be used in lieu of conducting a flood study.

c. The base flood elevation for a natural watercourse as set forth in EMC 14.70.020(D)(2) shall be established at the five-foot topographic elevation line above the ordinary high water mark.

2. The requirement to submit a flood boundary verification survey may be waived at the department's discretion, when the department can determine, using contour elevations, base flood data, orthophotos, and parcel data, that the extent of the regulated activity is clearly above the base flood elevation.

3. The flood boundary verification survey shall be prepared, signed, and dated by a registered land surveyor.

4. The department shall review the flood boundary verification survey to determine if the proposed development is located within a flood hazard area.

5. If the proposed development lies within the flood hazard area, the limits of the floodway, as well as the base flood elevation, shall be shown on the flood boundary verification survey.

D. Flood Study.

1. A flood study shall be conducted when the department's maps or sources indicate that the proposed project area for a regulated activity is, or may be located within, a potential flood hazard area where base flood elevation data is not available through the flood insurance study or other authoritative sources, or when an established base flood elevation is contested. A full engineering analysis to determine the base flood elevation shall be required by the department. Base flood elevations shall be determined using the detailed methods established in EMC 14.70.050, Appendix A. The department may approve alternative methods.

2. The flood study shall be prepared, signed, and dated by a professional engineer.

3. Once the department has reviewed and approved the flood study, the applicant shall be required to provide a flood boundary verification survey, utilizing the newly established base flood elevation, as outlined in subsection (C) of this section.

4. Flood studies shall not be required for coastal flood hazard areas.

E. Deep and/or Fast Flowing Water Analysis.

1. When the department determines that a proposed project area for a regulated activity is located within a flood hazard area, a deep and/or fast flowing water analysis based on ~~EMC 14.70.060(I), Figure 14.70-9 and EMC 14.70.050, Appendix A~~, shall be required to determine the floodway limits.

2. The floodway limits and flood fringe limits identified in the deep and/or fast flowing water analysis shall be depicted on the flood boundary verification survey, as outlined in subsection (C) of this section.
3. The deep and/or fast flowing water analysis shall be prepared, signed, and dated by a professional engineer.
4. Deep and/or fast flowing water analysis shall not be required for coastal flood hazard areas.

F. Zero-Rise Analysis.

1. When the department determines that a proposed project area for a regulated activity is located within a flood hazard area, a zero-rise analysis shall be required to determine that no increase in base flood elevation, displacement of flood volume, or flow conveyance reduction will occur as a result of the development.
2. The zero-rise analysis shall be conducted utilizing HEC-RAS (Hydrologic Engineering Center – River Analysis System) modeling methodology (for stream/channel floodways), the Western Washington Hydrology Model (i.e., WWHM, for pothole/closed depression floodways), or by other alternative methodologies approved by the city (see EMC 14.70.050, Appendix A). HEC-RAS can be found at the following website: <http://www.hec.usace.army.mil/software/hecras/>. WWHM can be found here: <http://www.ecy.wa.gov/programs/wq/stormwater/wwhmtraining/index.html>. The analysis shall show that no rise (0.01 foot or less) has occurred as a result of the proposed development. The proposed development may need to be reduced or specially engineered (such as utilizing piers or pilings) to achieve zero-rise.
3. The zero-rise analysis shall be prepared, signed, and dated by a professional engineer.
4. The zero-rise analysis shall be documented on the zero-rise analysis form, as set forth in EMC 14.70.050, Appendix A, and shall be attached to the flood hazard area permit.
5. Zero-rise analysis shall not be required for coastal flood hazard areas.
6. When structures are elevated by pier or pilings and no fill is placed in the flood hazard area, the requirement to submit a zero rise analysis may be waived at the department's discretion. (Ord. 17-492 § 2 (Exh. A); Ord. 02-200 § 2).

14.70.040 Flood hazard area standards.

A. General.

1. New construction done by or for the city, such as bridges, roads, flood control works, revetments, retaining walls, drainage structures, sewer or water lines, parks, or other structures necessary to promote the public's health, safety, and welfare shall be allowed in a flood hazard area when:
 - a. The project is prepared, dated, and stamped by a registered professional engineer in the state of Washington and is designed so the project does not result in any increase in flood levels during the occurrence of the base flood discharge (zero-rise) and shall not obstruct the floodway or cause an adverse impact to critical fish or wildlife habitat or adjacent, cross-channel, or upstream or downstream properties; and
 - b. The improvements utilize appropriate flood hazard protection standards.
2. Elevation Certificate. A Federal Emergency Management Agency (FEMA) elevation certificate shall be required for new construction, additions affixed to the side of a structure, and substantial improvements located within flood hazard areas. The most current version of the FEMA elevation certificate must be completed and certified by a professional land surveyor, currently licensed in the state of Washington, kept on file by the city for public inspection, recording the actual (as-built) elevation (in relation to mean sea level) of:
 - a. The lowest floor (including basement) of all new or substantially improved structures, whether or not the structure contains a basement;

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- b. For floodproofed nonresidential structures, where the structure was floodproofed (including floodproofing certifications).

B. Floodways. Any development, encroachments, filling, clearing or grading, new construction, and substantial improvements shall be prohibited within the floodway (including structures that do not require a building permit), except as allowed in the following standards:

1. Agricultural activities that do not require the installation of structures and that do not have any associated fill.
2. Park and recreational uses and facilities that do not require the installation of structures and that do not have any associated fill.
3. Individual recreational vehicles, not located in an RV park, that are licensed and ready for highway use, on wheels or jacking system, and are not permanently attached to the site (attached only by quick disconnect type utilities and security devices, with no permanently attached additions).
4. Habitat enhancement/stream restoration activities are permitted subject to the provisions outlined in subsection (D) of this section.
5. Rehabilitation, reconstruction, or an upper story addition to an existing structure that does not exceed the limits for a substantial improvement.
6. Private bridges may be allowed to cross the floodway; provided, that the structure meets the requirements contained in EMC 14.70.030 and the following:
 - a. The lowest structural member of a private bridge proposed to cross a channel migration zone shall be a minimum of six feet above the base flood elevation.
 - b. The lowest structural member of a private bridge proposed to cross the floodway portion of any other watercourse shall be a minimum of one foot above the base flood elevation.

C. Flood Fringe Areas. All activities allowed in subsection (B) of this section shall be permitted in a flood fringe area. Any other proposed development, encroachments, filling, clearing or grading, new construction, and substantial improvements are prohibited in a flood fringe area except as permitted under the following standards:

1. Structures that do not require a building permit and that do not have any associated fill are allowed, subject to flood hazard area review and permitting.
2. All other regulated activities shall only be allowed when the proposed development is located on an existing lot of record that was created prior to the effective date of the ordinance codified in this chapter. Applicants shall demonstrate there are no other feasible alternatives that would allow the proposed development to occur completely outside the flood hazard area. At a minimum, the following shall be demonstrated:
 - a. The development cannot be located outside the flood hazard area due to topographic constraints of the parcel or size and/or location of the parcel in relation to the limits of the flood hazard area and a building setback variance has been reviewed, analyzed, and rejected as a feasible alternative to encroachment into the flood hazard area; and
 - b. The proposed development shall not cause an adverse impact to adjacent, cross-channel, or upstream or downstream properties.
3. Roads, Bridges, Trails, and Parking Lots.
 - a. Roads, bridges, driveways, trails, emergency vehicle access, and access routes and easements, where allowed, shall be constructed and armored based on the standards in subsection (C)(4) of this section and elevated a minimum of one foot above the base flood elevation.
 - b. Parking lots shall be elevated to a minimum of one-half foot below the base flood elevation.

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4. Grading and Filling. When development is permitted under this subsection, it shall be designed to a zero-rise standard as set forth in EMC 14.70.030(F) and 14.70.050, Appendix A. Any filling, grading, or clearing associated with the permitted development shall not increase flood hazards, water velocities, or flood elevations. In addition to meeting the requirements for zero-rise, all permitted development must also meet the following requirements:

- a. Compensatory Storage. New excavated storage volume shall be equivalent to the flood storage capacity eliminated by filling or grading within the flood fringe. Equivalent shall mean that the storage removed shall be replaced by equal live storage volume between corresponding one-foot contour intervals that are hydraulically connected to the floodplain through their entire depth. ~~(refer to EMC 14.70.060(K), Figure 14.70-11).~~
- b. Flow Conveyance. New excavated conveyance areas shall be equivalent to existing conveyance within the flood fringe. Equivalent shall mean a mechanism for transporting water from one point to another using an open channel system.
- c. Erosion Protection. Development shall be protected from flow velocities greater than two feet per second through the use of bio-engineering methods or, when bioengineering methods have been deemed insufficient to protect development, then hard armoring may be utilized. All erosion protection shall extend one to three feet, depending on development requirements, above the base flood elevation and shall be covered with topsoil and planted with native vegetation ~~(see EMC 14.70.060(L), Figure 14.70-12).~~

5. Critical Facilities.

- a. New construction, additions affixed to the side of an existing structure, and substantial improvement of hazardous facilities, and special occupancy structures are prohibited.
- b. New construction of an essential facility, reconstruction of an existing essential facility, or additions to an existing essential facility that exceed the threshold for substantial improvement shall be permitted when no feasible alternative site is available outside the flood hazard area. Such regulated activities are subject to the following:
 - i. Essential facilities with a crawlspace elevated by fill shall have the lowest floor and any utilities and ductwork elevated a minimum of three feet above base flood elevation, ~~(see Figure 14.70-12),~~ or to the height of the 500-year flood, whichever is higher.
 - ii. Essential facilities elevated by piers or pilings shall have the finished floor and any utilities and ductwork elevated a minimum of three feet above the base flood elevation (or to the height of the 500-year flood, whichever is higher) and must be designed by a professional structural engineer. ~~(see Figure 14.70-13).~~
 - iii. Access to and from the critical facility shall be protected to the height utilized under subsections (C)(5)(b)(i) and/or (ii) of this section. Access routes shall be elevated to or above the same elevation to the maximum extent possible.
 - iv. Essential facilities shall be armored based on the standards in subsection (C)(4) of this section.
 - v. Flood proofing and sealing measures must be taken to ensure that toxic or explosive substances will not be displaced or released into floodwaters.

6. Structures. Single-family, two-family, multifamily, mobile/manufactured homes, commercial, industrial, etc., except for critical facilities as set forth in subsection (C)(5) of this section, shall be allowed subject to the following standards:

- a. New construction, additions affixed to the side of an existing structure, and substantial improvement of any structure with a crawlspace shall have the lowest floor elevated a minimum of two feet above base flood elevation. ~~(see EMC 14.70.060(L), Figure 14.70-12).~~

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b. New construction, additions affixed to the side of an existing structure, and substantial improvement of any structure elevated by piers or pilings shall have the bottom of the lowest horizontal structural member elevated a minimum of two feet above the base flood elevation and must be designed by a professional structural engineer. Electrical, heating, ventilation, plumbing, air-conditioning equipment, and other service facilities and associated ductwork shall be elevated a minimum of two feet above base flood elevation; however, the department may approve a lesser minimum distance above base flood elevation; provided, that the systems are designed to prevent floodwater from entering or accumulating within the components ~~(see EMC 14.70.060(M), Figure 14.70-13)~~. Areas below the lowest horizontal structural member shall not be enclosed and shall remain free of obstructions.

c. Mobile/manufactured homes shall be anchored to prevent flotation, collapse, or lateral movement, and shall be installed using methods and practices to minimize flood damage. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This is in addition to applicable state and local anchoring requirements for resisting wind forces.

7. Agricultural Accessory Structures. The lowest floor in an agricultural accessory structure shall be located at the base flood elevation or higher; provided, that the structure be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a professional engineer in the state of Washington or must meet or exceed the following minimum criteria:

a. A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided;

b. The bottom of all openings shall be no higher than one foot above grade; and

c. Openings may be equipped with screens, louvers, or other covering or devices; provided, that they permit the automatic entry and exit of floodwaters.

8. Construction Standards.

a. Construction of a basement is prohibited.

b. Crawl spaces shall be backfilled with clean earth material and shall meet International Building Code requirements. Finished grade within the crawlspace shall be at least two feet above the base flood elevation.

c. Flood proofing in lieu of elevating the structure is prohibited.

d. All single-family, two-family, multifamily, mobile/manufactured homes, commercial, and industrial structures shall be placed on standard concrete stemwall/footing foundations or piles, piers, or column foundations and engineered pursuant to International Building Code requirements.

9. Sewage Disposal and Potable Water Installation.

a. New and replacement public water sources (i.e., wells and water supply lines) and public sanitary sewage conveyance systems are allowed. These systems shall be designed to withstand scour resulting from flow velocity, minimize or eliminate infiltration of floodwaters into the systems, and minimize or eliminate discharge from the systems into floodwaters

b. All replacement wells and replacement on-site sewage system (OSS) shall be designed to minimize or eliminate impairment to them or contamination from/to them during flooding (i.e., infiltration of floodwaters into or discharge out of the systems). They shall not be located in pothole or no-outlet floodplains.

c. All new individual wells and new on-site sewage system (OSS) shall be prohibited. Conveyance systems from a structure to a well or OSS located outside of the flood hazard area shall be allowed provided these systems are designed to meet the standards in subsection (C)(4) of this section.

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D. Alteration of Watercourses. Any alteration of a watercourse shall comply with the following standards:

1. The city will notify adjacent communities and the Washington State Department of Ecology prior to any alteration or relocation of a watercourse proposed by the applicant and submit evidence of such notification to the Federal Insurance Administration.
2. The city shall require that maintenance be provided within the altered or relocated portion of said watercourse, so that the flood-carrying capacity is not diminished. Therefore, if the maintenance program calls for future cutting of planted native vegetation used in performing the alteration, the system shall be oversized at the time of construction to compensate for said vegetation growth or any other natural factor that may need future maintenance.
3. Alterations and relocations, including stabilization projects, shall not degrade fish habitat and shall be subject to the following provisions:
 - a. Structures that cross all watercourses and water bodies shall meet fish habitat requirements of ~~WDFW~~the Washington Department of Fish and Wildlife.
 - b. Any culverts that are used on fish-bearing watercourses shall be arch/bottomless culverts or equivalent that provide comparable fish protection, and must meet fish habitat requirements of the latest edition of ~~Washington Department of Fish and Wildlife~~WDFW's Design Manual for Culverts.
 - c. Bridges or other crossings shall allow for uninterrupted downstream movement of wood and gravel, be as close to perpendicular to the watercourse as possible, and be designed to minimize fill and to pass the base flood flows.
 - d. Watercourse alterations shall maintain natural meander patterns, channel complexity, and floodplain connectivity. Where feasible, such characteristics shall be restored as part of the watercourse alteration.
 - e. The applicant shall identify the channel migration zone for the watercourse at the project site and for a reasonable reach upstream and downstream of the site, and shall not undertake actions as part of the alteration that would in any way inhibit movement of the channel.
 - f. Existing culverts that do not meet fish habitat requirements shall be removed or replaced as part of the approved watercourse alteration project.
 - g. Watercourse alteration projects shall not result in a fish blockage of side channels. Known fish barriers into side channels shall be removed as part of the approved watercourse alteration project.
 - h. For any watercourse alteration of a Type S or F water (pursuant to EMC 14.40.0260(~~DB~~)) whose channel is subject to migration, bioengineered (soft) armoring of streambanks is required to allow for woody debris recruitment, gravels for spawning, and creation of side channels. The bioengineering technique used must be designed in accordance with the latest edition of ~~Washington Department of Fish and Wildlife~~WDFW's Integrated Streambank Protection Guidelines.
4. The project engineer shall design the watercourse alteration so the activity does not increase the water surface elevation (zero-rise); decrease the capacity, storage, and conveyance of the watercourse; or cause an adverse impact to adjacent, cross-channel, or upstream or downstream properties. (Ord. 17-492 § 2 (Exh. A); Ord. 02-200 § 2).

14.70.050 Appendices.

A. Floodplain/Floodway Analysis.

B. Channel Migration Zone Study.

APPENDIX A

FLOODPLAIN/FLOODWAY ANALYSIS

The Edgewood Municipal Code is current through Ordinance 17-498, passed April 11, 2017.

This Appendix describes the flood hazard analyses and studies as required by Chapter 14.70 EMC, Flood Hazard Areas. Flood hazard studies establish the base flood elevation and delineate floodplain and/or floodway(s) when a proposed project contains or is adjacent to a river, stream, lake, or closed depression.

Flood hazard studies must conform to FEMA regulations described in Part 65 of 44 Code of Federal Regulations (CFR). In addition, the following information must be provided and procedures performed for flood hazard studies used under Chapter 14.70 EMC to examine development proposals or improvements within a floodplain.

Article I. Floodway Determination

The city recognizes two distinct floodways. The FEMA floodway describes the limit to which encroachment into the natural conveyance channel can cause one foot or less rise in water surface elevation. The deep and/or fast flowing (DFF) water floodways are hazardous areas and conditions of the floodplain for both people and habitable structures. Life safety and protection to improved properties are compromised if encroached upon. Encroachment cannot occur within these areas.

A. FEMA Floodways.

1. FEMA floodways are determined through the procedures outlined in the FEMA publication Guidelines and Specifications for Study Contractors using the one-foot maximum allowable rise criteria.
2. Transitions shall take into account obstructions to flow such as road approach grades, bridges, piers, culverts, or other restrictions. General guidelines for transitions may be found in HEC-RAS, Water Surface Profiles – Users Manual, Appendix IV, Application of HEC-RAS Bridge Routines, published by the Hydrologic Engineering Center, Davis, California.

B. Deep and/or Fast Flowing (DFF) Floodways.

1. DFF floodways are generally assumed to include the entire 100-year floodplain until the department approves a detailed floodway analysis that defines areas of DFF within the entire floodplain area based on the criteria.
2. The hydraulic model must adequately be calibrated to known or recorded stage elevations of past flood events with computed recurrence frequency intervals for the 100-year flood recurrence interval. This is to ensure model accuracy.

Article II. Flood Study Content and Required Information

Three copies of the completed floodplain/floodway analysis study report and the modeling digital files shall be submitted. The report submittal must be stamped by a licensed professional civil engineer and include the following information in addition to that required for the drainage plan of a proposed project:

A. Floodplain/Floodway Map.

1. A scaled survey base map stamped by a licensed professional land surveyor registered in the state of Washington. The map must accurately locate the proposed development with respect to the floodplain and floodway, the channel of the subject stream, river, and/or pothole location, and the existing improvements within the subject study area. It must also supply all pertinent information such as the nature of the proposed project, legal description of the property on which the project would be located, fill quantity, limits and elevation, the building floor elevations, and use of compensatory storage.
2. The map must show elevation contours at a minimum of two-foot vertical intervals and shall comply with survey and map guidelines published in the FEMA publication Guidelines and Specifications for Study Contractors. The map must show the following:
 - a. Elevations and ground contours, spot elevations, and vertical datum NAVD 88 (North American Vertical Datum of 1988) (or most recent vertical datum accepted by the department).

- b. Elevations and dimensions of existing structures, fill, and compensatory storage areas.
- c. Size, location, elevation and spatial arrangement of all proposed structures on the site.
- d. Location and elevations of roadways, drainage facilities, water supply lines, and sanitary sewer facilities.
- e. Areas of DFF must clearly be shown and plotted on the map sheet depicting the bounded area of the floodway on both sides of the study channel through the subject site. DFF floodway studies must reflect all transitions as referenced above as well.
- f. The base maps must also be accompanied by all field survey notes/computations, drawings, etc., for each cross-section with water surface elevation at the time the cross-section field survey was done.

B. Study Report.

- 1. Soil maps, groundcover maps, and photographs.
- 2. A narrative report containing the purpose of the study and description of the study area, data collection, methodology for both the hydrology and hydraulics, detailed discussion on the input parameters used, modeling results, and conclusions.
- 3. A floodplain/floodway analysis must include calculations and all computer analysis input and output information, supporting graphical illustrations, as well as the following additional information:
 - a. Scaled cross-sections showing the current/existing conditions of the river/stream channel, the floodplain adjoining each side of the channel, the computed floodway, the cross-sectional area to be occupied by any proposed development and all historic high water information.
 - b. Profiles showing the bottom of the channel, the top of both left and right banks and computed base flood water surface elevations for the 10-, 25-, 50- and 100-year events.
 - c. Plans and specifications of any flood protection for structures, construction areas, filling, dredging, channel improvements, storage of materials, water supply, and sanitary facilities within the floodplain.
 - d. Complete printout of input and output data of the model that was used for the analysis. Liberal use of comments and written discussion will assist considerably in understanding the model logic and minimize misinterpretations and/or questions.
 - e. A map, showing the graphical/plotted location and limits of the computed floodway and/or floodplain.
 - f. Three copies of ready-to-run digital files of both the hydrologic and hydraulic model and its input and output files used in the study. Data shall be submitted on a disk in standard ASCII format, ready to use on an IBM-compatible personal computer and in the applicable software application (i.e., HEC-RAS, HSPF – Hydrological Simulation Program – Fortran, SBUH, etc.).
 - g. A section on the flood flow including computer modeling and/or calculations (see below for additional requirements on flood flow determinations).
 - h. Aerial photographs of the site including pre-February 1996 and post-February 1996 photos of the site.
 - i. All field survey notes/computations, maps, and drawings for each cross-section with water surface elevation at the time of the cross-section field survey.

C. Computer Modeling Information. Floodway/floodplain studies submitted to the city for review must include output summary tables and include the following (but not limited to) items:

- 1. Cross-section(s) identification number.

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2. Range of flows being examined.
3. Computed water surface elevation at each cross-section.
4. Energy grade line at each cross-section.
5. Graphical plots of the channel cross-sections with computed water surface elevations for all model runs including calibrated model runs.
6. All model input and output printouts.
7. Graphical plots of the model output data that show the points and segments along each cross-section where deep and/or fast flowing water occurs. This shall include cross-section plots of depth and velocity in one-unit increments. The plots shall also be accompanied with a table listing the station distance (right and left bank), flow rate, area, hydraulic depth, velocity, and whether each point is a floodway.
8. A plan sheet clearly showing the graphical representation of the bounded area of the floodway based on DFF criteria through the entire study site and reach. Note that identified islands or pockets within the middle of the bounded floodway area are generally considered as part of the floodway, unless otherwise approved by the department.
9. Discussion on the starting water surface elevation for the hydraulic model.

Article III. Determining Flood Flows

The three techniques used to determine the flows used in a flood study depend on whether gauge data is available, whether a basin plan has been adopted, or a detailed flood study has been done and approved for use by the Department. The first technique is for basins with adopted basin plan areas. The second technique is used if a gauging station exists on the stream. The third technique is used on ungauged catchments or those with an insufficient length of record. In all cases, the engineer shall be responsible for assuring that the hydrologic methods used are technically reasonable, conservative, conform to the FEMA publication, Guidelines and Specifications for Study Contractors, and are acceptable by FEMA and the department.

A. Flood Flows from Adopted Basin Plan Information. Flood flows may be determined using information from the city's basin plan. The hydrologic model used in the basin plan shall be updated to include the latest changes in zoning or any additional information regarding the basin which has been acquired since the adoption of the basin plan.

B. Flood Flows from Stream Gauge Data. Determining flood flows from stream gauge data uses the Log-Pearson Type III distribution method as described in the Guidelines for Determining Flood Flow Frequency, Bulletin 17B of the Hydrology Committee, United States Water Resources Council (revised October 1981).

1. This technique may be used only if data from a gauging station in the basin is available for a period of at least 10 years.
2. If the difference in the drainage area on the stream at the study site and the drainage area to a gauging station on the stream at a different location in the same basin is less than or equal to 50 percent, the flow at the study site shall be determined by transferring the calculated flow at the gauge to the study site using a drainage area ratio raised to the 0.86 power, as in the following equation:

where

- Q_{ss} = estimated flow for the given return frequency on the stream at the study site.
- Q_g = flow for the given return frequency on the stream at the gauge site.
- A_{ss} = drainage area tributary to the stream at the study site.
- A_g = drainage area tributary to the stream at the gauge site.

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3. If the difference in the drainage area at the study site and the drainage area at a gauging station in the basin is more than 50 percent and a basin plan has not been prepared, a continuous model shall be used as described below to determine the flood flows at the study site.

4. In all cases where dams or reservoirs, floodplain development, or land use upstream may have altered the storage capacity or runoff characteristics of the basin so as to affect the validity of this technique, a continuous model shall be used to determine flood flows at the study site.

C. Flood Flows from a Calibrated Continuous Model. Flood flows may be determined by utilizing a continuous flow simulation model such as HSPF or other equivalent continuous flow simulation model, as approved by the city. Where flood elevation or stream gauging data are available, the model shall be calibrated to the known data. Otherwise, regional parameters may be used.

Article IV. Determining Flood Elevations, Profiles and Floodways (Hydraulic Model)

A. Reconnaissance. The applicant's project engineer is responsible for the collection of all existing data with regard to flooding in the study area. This shall include a literature search of all published reports in the study area and adjacent communities and an information search to obtain all unpublished information on flooding in the immediate and adjacent areas from federal, state, and local units of government. This search shall include specific information on past flooding in the area, drainage structures such as bridges and culverts that affect flooding in the area, available topographic maps, available community maps, photographs of past flood events, and general flooding problems within the community. Documented discussions with nearby property owners should also be done to obtain a witness account of the flooding extent. A field reconnaissance shall be made by the applicant's project engineer to determine hydraulic conditions of the study area, including type and number of structures, locations of cross-sections, and other parameters including the roughness values necessary for the hydraulic analysis.

B. Base Data. Channel cross-sections used in the hydraulic analysis shall be current/existing at the time the study is performed and shall be obtained by field survey. Topographic information obtained from aerial photographs/mapping may be used in combination with surveyed channel cross-sections in the hydraulic analysis. The elevation datum of all information used in the hydraulic analysis shall be verified. All information shall be referenced directly to NAVD 1988 (and include local correlation to NGVD) unless otherwise approved by the city.

C. Methodology. Flood studies and analysis (including deep and/or fast flowing floodways and zero-rise analysis) shall be calculated using the U.S. Army Corps of Engineers HEC-RAS computer model (or subsequent revision) unless otherwise approved by the city.

D. Adequacy of the Hydraulic Model. Edgewood considers the following (but not limited to) factors when determining the adequacy of the hydraulic model for use in the floodway/floodplain model:

1. Cross-section of a downstream starting location and spacing.
2. Differences in energy grade line (significant differences in the energy grade line from cross-section to cross-section are an indication that cross-sections should be more closely spaced or that other inaccuracies exist in the hydraulic model).
3. Methods and results for analyzing the hydraulics of structures such as bridges and culverts.
4. Lack of flow continuity.
5. Use of a gradually varied flow model. In certain cases, rapidly varied flow techniques may need to be used in combination with a gradually varied flow model such as weir flow over a levee, flow through a spillway of a dam, or special application of bridge flow (pressure flow if bridge superstructure is shown to be submerged for the study event).
6. Mannings "n" value.

7. Calibration of hydraulic model to known and/or observed flow stage elevations including past flood events.

8. Special applications. In some cases, steady state one-dimensional hydraulic models may not be sufficient for preparing the floodplain/floodway analysis. This may occur where sediment transport, two-dimensional flow, or other unique hydraulic circumstances affect the accuracy of the model. In these cases, the project engineer must propose and obtain department approval of alternative models for establishing the water surface elevations.

9. All reported error and/or warning messages by the model must be properly and adequately addressed and/or resolved and included in the report for review verification.

Article V. Zero-Rise Analysis (ZRA)

A. Zero-rise analysis (ZRA) is required where encroachment within the flood fringe area is allowed and approved by the department. The ZRA must show that the proposed development encroachment in the flood fringe area will not show a measurable rise in the base flood elevation (i.e., less than 0.01 foot), resulting from a comparison of existing conditions and proposed conditions. This is directly attributable to development in the floodplain but not attributable to manipulation of mathematical variables such as roughness factors, coefficients, discharge, and other hydraulic parameters.

B. In addition to those items listed in subsection (A) of this article, the following shall be included in a ZRA:

1. Floodway boundaries (based on zero-rise) are to follow the stream lines and reasonably balance the rights of property owners on either side of the floodway. Use of the automatic equal conveyance encroachment option in the model will be considered equitable.
2. The ZRA must include a sufficient number of cross-sections in order to accurately model the subject fill and compensatory storage areas of the site. In all cases, cross-sections shall be located downstream, through the subject site and upstream of the site at a very minimum. They shall also be located where changes in channel and the fill material characteristics occur, such as slope, shape, and roughness. The sections shall also be located perpendicular to the flow path in the channel and the outside overbank areas. The department shall review and approve the proposed number and location of cross-sections. All cross-sections and surveys shall be prepared and certified by a professional land surveyor or registered professional engineer in the state of Washington.
3. The difference between two profiles of water surface elevation at the cross-section (e.g., difference between existing and encroached water surface). The model must report 0.01 feet or less an allowable change in the water surface elevation. This must be shown in the profile graphical plot as well.
4. The difference between profiles of the energy grade line at the cross-section. The model must report 0.01 feet or less. This is the allowable change in the energy grade line. This must be shown in the profile graphical plot as well.

C. Conveyance Capacity.

1. The ZRA must also show that the proposed development encroachment in the flood fringe area will not show a measurable decrease (less than 0.01 CFS) in the conveyance capacity of the channel, resulting from a comparison of existing conditions and proposed conditions, for each of the cross-sections. This is also directly attributable to development in the floodplain but not attributable to manipulation of mathematical variables such as roughness factors, coefficients, discharge, and other hydraulic parameters.
2. The analysis must provide calculations of the reduction in conveyance caused by the proposed development encroachment, assuming no change in the water surface elevation, and using the roughness coefficient value(s) appropriate for the proposed development.
3. The analysis must then provide calculations for the increase in conveyance of the proposed compensatory measure, using the roughness coefficient value(s) appropriate for the proposed development.

4. Include a comparison analysis and discussion from subsections (C)(2) and (3) of this article. The comparison must adequately show that the conveyance capacity has not measurably decreased between the existing condition and proposed development condition.

Floodplain/Floodway Zero-Rise Certification

This is to certify that I am a duly qualified professional engineer licensed to practice in the state of Washington.

This is to further certify that the attached floodplain/floodway zero-rise analysis conclusively shows that the proposed development of:

(Name of Development) Parcel Number

will not increase the 100-year base flood elevation(s) and widths nor reduce the conveyance capacity of the floodplain/floodway and its associated channel to the

(Name of River, Stream, Pothole or other Watercourse)

Supporting Data

Base Flood Elevation (Pre-Development) = _____ FT (NAVD 88)

Base Flood Elevation (Post-Development) = _____ FT (NAVD 88)

Conveyance Capacity (Pre-Development) = _____ CFS

Conveyance Capacity (Post-Development) = _____ CFS

with compensatory storage)

Signature Date

Title Firm Name

Address

City

State Zip Code

APPENDIX B

CHANNEL MIGRATION ZONE STUDY REQUIREMENTS

The channel migration zone (CMZ) is the area within the lateral extent of likely stream channel movement due to stream bank destabilization and erosion, rapid stream incision, and shifts in location of stream channels. The CMZ will define areas in which, to the best information available, development should be regulated due to the dangers expected from erosion.

Article I. Determining Channel Migration Zone Limits

The Edgewood Municipal Code is current through Ordinance 17-498, passed April 11, 2017.

A. The CMZ shall be based on available historic records of channel migration, or 100 years of calculated channel migration whichever is greater, and will generally include those areas that encompass:

1. The limit of geologic controls, such as hill slope, bedrock outcrop, or abandoned floodplain terrace;
2. Side channels, abandoned channels, and oxbows; and
3. Outside edges of progressive bank erosion at meander bends.

B. Channel migration over the 100-year time frame can be estimated and predicted from geomorphic analysis of annual bank erosion rates, historic meander belt width, and measured meander bend amplitudes, potential avulsion sites, and previous river channel locations as depicted on historic aerial photographs and maps. The 100-year time span represents the time required to grow mature trees that can provide functional large woody debris to streams.

C. The CMZ boundaries will be determined using the following specific criteria:

1. The representative average annual rate of channel migration in the affected river reach is calculated by dividing the lateral distance eroded with the corresponding elapsed time shown in sequential aerial photographs or historic maps (distance/time equals channel movement). Measurements from reaches that have had some form of bank armoring shall not be included. Historical records will need to be checked closely for this information.
2. Identify the width of the channel migration zone by multiplying the representative average annual erosion rate by 100 years.

D. Areas separated from the active channel by legally existing artificial channel constraints (levees, roads, driveways, etc.) that limit bank erosion and channel avulsion to the 100-year recurrence interval flood elevation plus three feet of freeboard shall serve as a boundary for the outer limit of the CMZ.

Article II. Channel Migration Zone Study Content and Required Information

Three copies of the completed channel migration zone study shall be submitted. The study submittal must be stamped by a licensed professional engineer or professional geologist with five years experience in fluvial geomorphology, river dynamics, or geotechnical engineering. The CMZ study shall include the following information in addition to that required for the drainage plan of a proposed project. The CMZ study will consist of a written technical report including:

- A. Detailed methods, techniques, and assumptions used in determining the location of the CMZ.
- B. A vicinity map and site with scale, north arrow, and parcel number(s) or specific site being studied.
- C. A clear statement of the requested revision to the county's determination of the 100-year floodplain limits as the CMZ.
- D. A clearly stated conclusion of the study results that support the requested revision. The conclusion needs to document the basis for the revision, show how the data presented refutes the 100-year floodplain limits as the CMZ, and calculates the new results using the new information.
- E. A map clearly delineating the subject property and the CMZ of the adjacent watercourse. In addition to providing a hard copy of the CMZ map, the CMZ map shall also be provided in ARC-View shapefile format. Contact the city GIS department for mapping and aerial imaging standards. (Ord. 02-200 § 2).

~~14.70.060 — Figures.~~

~~A. Figure 14.70-1, Potential Flood Hazard Areas — Detailed Study Areas.~~

~~B. Figure 14.70-2, Potential Flood Hazard Areas — Unstudied Areas.~~

~~C. Figure 14.70-3, Potential Flood Hazard Areas — Natural Watercourse.~~

~~D. Figure 14.70-4, Potential Flood Hazard Areas—Groundwater Flooding Areas.~~

~~E. Figure 14.70-5, Potential Flood Hazard Areas—Potholes.~~

~~F. Figure 14.70-6, Potential Flood Hazard Areas—Potholes.~~

~~G. Figure 14.70-7, Potential Flood Hazard Areas—Channel Migration Zone.~~

~~H. Figure 14.70-8, Floodway—Flood Hazard Area.~~

~~I. Figure 14.70-9, Deep and/or Fast Flowing Water Graph.~~

~~J. Figure 14.70-10, Pothole and B Zone Flood Hazard Area.~~

~~K. Figure 14.70-11, Compensatory Storage.~~

~~L. Figure 14.70-12, Structure with Crawlspace Elevation by Fill.~~

~~M. Figure 14.70-13, Building on Piles, Piers or Columns.~~

~~(Ord. 02-200 § 2).~~

The Edgewood Municipal Code is current through Ordinance 17-498, passed April 11, 2017.

Chapter 14.80

LANDSLIDE HAZARD AREAS

Sections:

- 14.80.010 Purpose.
- 14.80.020 Landslide hazard areas.
- 14.80.030 Landslide hazard area review procedures.
- 14.80.040 Landslide and erosion hazard area standards.
- 14.80.050 Buffer requirements.
- 14.80.060 Appendices.
- ~~14.80.070 Figures.~~

14.80.010 Purpose.

The following statements describe the purpose of this chapter is to:

- A. Protect human life and health.
- B. Regulate uses of land in order to avoid damage to structures and property being developed and damage to neighboring land and structures.
- C. Identify and map active landslide hazard areas.
- D. Minimize the ill effects on wetlands and critical fish and wildlife habitat that can result from landslides.
- E. Establish permit requirement and review procedures for development proposals in areas with potential landslides. (Ord. 02-200 § 2).

14.80.020 Landslide hazard areas.

A. Landslide Hazard Areas Indicators. Landslide hazard areas are areas potentially subject to mass movement due to a combination of geologic, seismic, topographic, hydrologic, or manmade factors. Landslide hazard areas can be identified by the presence of any of the following indicators:

1. Areas of historic failures, including areas of unstable, old and recent landslides or landslide debris within a head scarp.

~~2. Areas with active bluff retreat that exhibit continuing sloughing or calving of bluff sediments, resulting in a vertical or steep bluff face with little or no vegetation.~~

~~3. Areas with all of the following characteristics:~~

- a. Slopes steeper than ~~20~~15 percent with a vertical relief of 20 feet or more ~~(see EMC 14.80.070(A), Figure 14.80-1); and~~
- b. Hillside that intersect geologic contacts with a relatively permeable sediment overlying a relatively impermeable sediment or bedrock; and
- c. Springs or groundwater seepage.

~~4. Slopes that are parallel or sub-parallel to planes of weakness, such as bedding planes, joint systems, and fault planes in subsurface materials.~~

~~5. Areas exhibiting geomorphological features indicative of past slope failure within the last 10,000 years, such as hummocky ground, back-rotated benches on slopes, tension cracks, etc.~~

~~6. Areas with tension cracks or ground fractures along and/or near the edge of the top of a bluff or ravine.~~

The Edgewood Municipal Code is current through Ordinance 17-498, passed April 11, 2017.

7. Areas with structures that exhibit structural damage such as settling and cracking of building foundations or separation of steps or porch from a main structure that is located near the edge of a bluff or ravine.

8. The occurrence of toppling, leaning, bowed, or jackstrawed trees that are caused by disruption of ground surface by active movement.

9. Areas with slopes containing soft or liquifiable soils.

10. Areas where gullying and surface erosion have caused dissection of the bluff edge or slope face as a result of drainage or discharge from pipes, culverts, ditches, and natural drainage courses.

11. Areas where seeps or springs or indicators (e.g., vegetation type) of a shallow groundwater table are observed on or adjacent to the face of the slope.

124. Any area with a slope of 40 percent or steeper and with a vertical relief of 15-15 or more feet, except those manmade slopes created under the design and inspection of a geotechnical professional or slopes composed of competent bedrock. Manmade slopes of 40 percent or steeper with a vertical relief of 15 feet or more may be exempted from the requirements of this section of the code provided that it can be demonstrated by a qualified geotechnical professional that such an exemption does not result in an increased risk of landsliding or damage to the subject site, nearby properties, or existing structures and, any associated hazards to proposed structures are suitably mitigated. For the purposes of determining whether a slope is considered to be a landslide hazard area, the horizontal and vertical distance between the top and toe of slope are utilized (see EMC 14.80.060, Appendix D, and EMC 14.80.070(A), Figure 14.80-1).

135. Areas that are at risk of mass movement due to seismic events.

B. Potential Landslide Hazard Areas. Potential landslide hazard areas (see EMC 14.80.070(BB), Figure 14.80-2), as depicted on the Critical Areas Atlas—Landslide Hazard Areas Map Geologically Hazardous Areas map, are those areas where the suspected risk of slope instability and landslide is sufficient to require a geological assessment to assess the potential for active landslide activity. Potential landslide hazard areas are determined by using the following criteria:

1. Areas identified on the city topographic maps as having slopes greater than 20 percent with a vertical relief of greater than 20 feet and any adjacent areas within a distance of 65 feet (see EMC 14.80.070(C), Figure 14.80-3).

21. Areas that possess one or more of the landslide hazard area indicators (stratigraphy, topography, emergent groundwater conditions seepage, etc.) as set forth in subsection (A) of this section and any adjacent area within a distance of 65 feet (EMC 14.80.070(B), Figure 14.80-2). —These areas include, but are not necessarily limited to, those areas designated on the City's Geologically Hazardous Areas map as moderate or steep slope areas.

C. Landslide Hazard Area Categories. Landslide hazard areas shall be classified into categories, which reflect each landslide hazard areas past landslide activity, and the potential for future landslide activity based on an analysis of slope instability. Landslide hazard areas shall be designated as follows:

1. Active Landslide Areas. A composite of the active landslides and/or unstable areas, including that portion of the top of slope and slope face subject to failure and sliding as well as toe of slope areas subject to impact from down slope run-out, identified and mapped during a geological assessment of a site. An active landslide hazard area exhibits one or more of the following:

a. Areas of historical landslide movement on a site which have occurred in the past century including areas identified on the Coastal Zone Atlas of Washington, Volume VII, Pierce County as Unstable recent slide).

b. Unstable areas that exhibit geological and geomorphologic evidence of past slope instability or landsliding or possess geological indicators (stratigraphy, ground water conditions, etc.), as set forth in subsection (A) of this section, that have been determined through a geological assessment process to be presently failing or may be subject to future landslide activity. The impact of the proposed development activities must be considered in defining the extent of the active areas.

e. Interim areas are located between areas identified through the geological assessment process as an active landslide hazard area. Interim areas will be considered part of the active landslide hazard area if the required top of slope or toe of slope landslide hazard area buffer encompasses the area (see EMC 14.80.070(D), Figure 14.80-4).

2. Stable Areas. Areas that have been identified as potential landslide hazard areas, but through the geological assessment process meet one of the following conditions. Such stable areas shall continue to be considered critical areas for all purposes under this code including but not limited to density calculations and the application of SEPA:

a. No indicators as set forth in subsection (A) of this section actually exist that indicate the potential for future landslide activity to occur;

b. A slope stability analysis has proven that there is no landslide potential; or

c. Adequate engineering or structural measures have been provided through the submittal of a geological assessment—geotechnical report that mitigates the potential for a future landslide to occur as a result of current or cumulative development activity. (Ord. 04-240 § 1; Ord. 02-200 § 2).

14.80.030 Landslide hazard area review procedures.

A. General Requirements.

1. The city's ~~critical areas atlas~~ Geologically Hazardous Areas map provides an indication of where active and potential landslide hazard areas are located within the city. The actual presence or location of an active landslide hazard area ~~and/or additional potential landslide hazard areas~~ that have not been mapped, but may be present on or adjacent to a site, shall be determined using the geological assessment procedures established in this chapter.

2. The department will complete a review of the ~~Critical Areas Atlas—Landslide Hazard Area Map~~ Geologically Hazardous Areas map and other source documents for any proposed regulated activity to determine whether the site is, or may be, located within an active landslide hazard area or potential landslide hazard area. Identification of an active landslide hazard area or potential landslide hazard area may also occur as a result of field investigations conducted by department staff.

3. When the department's maps or sources indicate that the site for a proposed regulated activity is or may be located within an active landslide hazard area or potential landslide hazard area, the department shall require the submittal of a geological assessment as outlined in subsection (B) of this section ~~(see EMC 14.80.070(E), Figure 14.80-35).~~

4. Unless otherwise stated in this chapter, the critical protective measure provisions contained in EMC 14.10.080 shall apply.

B. Geological Assessment. A geological assessment is a site investigation process to evaluate the on-site geology affecting a subject property. The findings of the geological assessment shall be presented in a Landslide Hazard Geotechnical Verification or Geotechnical Report, in accordance with EMC 14.80.070(C), Figure 14.80-3

1. Geological assessments shall be submitted to the department for review and approval together with a landslide hazard area application and associated fee.

2. A geological assessment shall include a field investigation and may include the use of historical air photo analysis, LiDAR mapping, review of regional geologic mapping, review of public records and documentation, and interviews with adjacent property owners, etc.

3. The geological assessment shall include the following information and analysis:

a. A determination of which areas on the site or within the vicinity of the site meet the criteria for an active landslide hazard area ~~and stable area~~ as set forth in EMC 14.80.020 ~~(C)(1) and (2).~~

b. Consider the run-out hazard of landslide debris to the proposed development that starts upslope (whether part of the subject property or on a neighboring property) and/or the impacts of landslide run-out on down slope properties.

c. The geological assessment shall include a detailed review of the field investigations, published data and references, data and conclusions from past geological assessments, or geotechnical investigations of the site, site-specific measurements, tests, investigations, or studies, as well as the methods of data analysis and calculations that support the results, conclusions, and recommendations.

4. Geological assessments shall be prepared, signed, and dated by a geotechnical professional (as defined in EMC 14.10.060 and established in this chapter) and the format shall be pre-approved by the department.

5. An ~~engineering geologist~~ geotechnical professional shall complete a field investigation and geological assessment to determine whether or not ~~an active~~ landslide hazard area ~~exists~~ is likely to exist within 300 feet of the site ~~(see EMC 14.80.070(EC), Figure 14.80-53)~~. Where access to off-site properties is not available by the geotechnical professional, evaluation of off-site landslide hazards must include review of regional geologic mapping and LiDAR based topographic mapping.

~~a. The geological assessment shall be submitted in the form of a geotechnical letter when the engineering geologist finds that no active landslide hazard area exists within 300 feet of the site. The geotechnical letter shall meet the requirements contained in EMC 14.80.060, Appendix A.~~

~~ab. The geological assessment shall be submitted in the form of geotechnical verification when the engineering geologist geotechnical professional finds that no an active landslide hazard area exists, but is located more than within 300 feet away from of the proposed project area. The geotechnical verification shall meet the requirements contained in EMC 14.80.060, Appendix BA.~~

~~be. The geological assessment shall be submitted in the form of a geotechnical report when the engineering geologist geotechnical professional finds that an active landslide hazard area exists within 300 feet of the proposed project area or when a geotechnical professional determines that mitigation measures are necessary in order to construct or develop within a potential landslide hazard area. The geotechnical report shall meet the requirements contained in EMC 14.80.060, Appendix CB.~~

6. Geological assessments that do not contain the minimum required information or comply with the landslide hazard area standards set forth in EMC 14.80.030 will be returned to the geotechnical professional for revision.

7. The department shall review the geological assessment and either:

- a. Accept the geological assessment; or
- b. Reject the geological assessment and require revisions or additional information.

8. When the geological assessment has been accepted, the department shall issue a decision on the landslide hazard area application.

9. A geological assessment for a specific site may be valid for a period of up to five years when the proposed land use activity and surrounding site conditions are unchanged. However, if any environmental conditions associated with the site change during that five-year period, the applicant may be required to submit an amendment to the geological assessment. (Ord. 02-200 § 2).

14.80.040 Landslide and erosion hazard area standards.

A. Active Landslide Hazard Areas. Any development, encroachment, filling, clearing or grading, building structures, impervious surfaces, and vegetation removal shall be prohibited within active landslide hazard areas and associated buffers except as specified in the following standards:

1. Stormwater Conveyance. Stormwater conveyance shall be allowed when it is conveyed through a high-density polyethylene stormwater pipe with fuse-welded joints and when no other stormwater conveyance alternative is

available. The pipe shall be located on the surface of the ground and be properly anchored so that it will continue to function in the event of an underlying slide.

2. Utility Lines. Utility lines will be permitted when no other conveyance alternative is available. The line shall be located above ground and properly anchored and/or designed so that it will continue to function in the event of an underlying slide.

3. Roads, Bridges, and Trails. Roads, bridges, and trails shall be allowed when all of the following conditions have been met:

a. Mitigation measures are provided that ensure the roadway prism and/or bridge structure will not be susceptible to damage from landslide-induced ground deformation or impact/coverage by landslide debris. Mitigation measures shall be designed for static and seismic loading conditions in accordance with the most recent version of the American Association of State Highway and Transportation Officials (AASHTO) Manual.

b. The road is not a sole access for a development.

c. The removal or disturbance of vegetation, clearing or grading shall be prohibited during the wet season (November 1st to May 1st).

B. Landslide Hazard Management Areas. All regulated activities may be allowed in areas located within 300 feet of an ~~an~~ active landslide hazard area subject to the following standards:

1. The department reviews and approves a geological assessment – geotechnical report and determines that the potential landslide hazard area is stable.

2. The proposed development is located outside of an ~~an~~ active landslide hazard area and any required buffer, as set forth in EMC 14.80.050.

3. The proposed recommendations and mitigation measures contained within the geotechnical report are adequate to reduce or mitigate risks to health and safety.

4. The proposed development shall not decrease the factor of safety for landslide occurrence below the limits of 1.5 for static conditions and ~~1.2~~ 1.1 for dynamic conditions. Analysis of dynamic (seismic) conditions shall be based on a minimum horizontal acceleration as established by the current version of the International Building Code.

5. The removal and disturbance of vegetation, clearing or grading shall be limited to the area of the approved development and shall not be allowed during the wet season (November 1st through May 1st) unless adequate provisions for wet season erosion have been addressed in the geotechnical report and approved by the department.

6. Surface drainage from developed areas, including downspouts and runoff from paved or unpaved surfaces up slope, shall not be directed through an ~~an~~ active landslide hazard area or its associated buffer unless it is conveyed in conformance with the provisions in EMC 14.80.030 ~~(A)~~ (1).

7. Stormwater retention facilities, including infiltration systems utilizing perforated pipe, are prohibited unless the slope stability impacts of such systems have been analyzed and mitigated by a geotechnical professional and the impacts have been determined to be negligible.

8. The proposed development shall not create a need for larger landslide hazard area buffers and setbacks on neighboring properties unless approved through a notarized written agreement with the affected property owner(s).

9. The proposed development shall be sited far enough from regressing slope faces to project 120 years of useful life for the proposed structure(s) or infrastructure.

The Edgewood Municipal Code is current through Ordinance 17-498, passed April 11, 2017.

10. Any proposed lots must be completely located outside any identified ~~active~~ landslide hazard areas or their associated buffers.

11. ~~Stable~~ landslide hazard areas that are directly adjacent to any riparian areas, or wetlands, may be subject to additional buffer requirements and standards as set forth in Chapter 14.40 EMC, ~~Critical~~ Fish and Wildlife Habitat ~~Conservation~~ Areas, or wetlands as set forth in Chapter 14.30 EMC, Wetlands. (Ord. 02-200 § 2).

14.80.050 Buffer requirements.

A. Determining Buffer Widths.

1. The buffer width shall be measured on a horizontal plane from a perpendicular line established at the edge of the ~~active~~ landslide hazard area limits (both from the top and toe of the slope) (~~see EMC 14.80.070(F), Figure 14.80-6~~).

2. A buffer of undisturbed vegetation shall be required for ~~an active~~ landslide hazard area. The required buffer width is the greater amount of the ~~following~~ distances ~~described in EMC 14.80.050(a) and (b)~~:

a. Fifty feet from all edges of the active landslide hazard area limits;

b. A distance of one-third the height of the slope at the top of the active landslide hazard area and a distance of one-half the height of the slope at the bottom of an active landslide hazard area; or

c. ~~The minimum distance recommended by the geotechnical professional, measured from the edges of the active landslide hazard area. The buffer widths may be reduced below the widths specified in EMC 14.80.050(a) and (b), or eliminated upon approval by the department of a geotechnical report that demonstrates that such a reduction would not result in an increased risk of landslide activity either on or off of the subject property.~~

B. Modification of Buffer Widths. The department may require a larger buffer width than the buffer distance, as determined in subsection (A) of this section, if any of the following are identified:

1. The adjacent land is susceptible to severe erosion and erosion control measures will not effectively prevent adverse impacts.

2. The area has a severe risk of slope failure or downslope stormwater drainage impacts. (Ord. 02-200 § 2).

14.80.060 Appendices.

~~A. Geological Assessment – Landslide Hazard Geotechnical Letter.~~

~~B. A. Geological Assessment – Landslide Hazard Geotechnical Verification.~~

~~C. B. Geological Assessment – Landslide Hazard Geotechnical Report.~~

APPENDIX A

GEOLOGICAL ASSESSMENT – LANDSLIDE HAZARD GEOTECHNICAL LETTER

~~A. A geotechnical letter shall include the following:~~

~~1. The letter shall be labeled identifying the submittal as a “Landslide Hazard Geotechnical Letter.”~~

~~2. The date when the geological assessment was performed. The date when the letter was prepared.~~

~~3. The parcel number(s) of the site.~~

~~4. Site address, if the city has assigned one.~~

~~5. A brief description of the project (including the proposed land use) and a description of the area to be developed. The appropriate professional preparing the geotechnical letter shall provide conclusions and recommendations as to slope stability for the proposed development.~~

~~6. A paragraph that states the following specific language:~~

~~I meet the qualifications contained in EMC 14.10.060 to prepare a landslide hazard geological assessment. I understand the requirements of the current landslide hazard area Chapter 14.80. EMC and the definitions of the applicable terms contained within EMC 14.10.060. I have performed a landslide hazard geological assessment, conducted a field investigation, and researched historic records on or in the vicinity of the above referenced site and determined that no active landslide hazard area exists within 300 feet of the site.~~

~~7. The name, mailing address, and telephone number of the engineering geologist who performed the geological assessment and prepared the letter.~~

~~8. The name, mailing address, and telephone number of the property owner.~~

~~B. The engineering geologist who prepared the letter shall stamp the letter with his or her license stamp/seal.~~

~~C. Geotechnical letters shall be in conformance with a format that is pre-approved by the department.~~

APPENDIX ~~B~~A

GEOLOGICAL ASSESSMENT – LANDSLIDE HAZARD GEOTECHNICAL VERIFICATION

A. A geotechnical verification shall include the following:

~~1. The first page of the document shall be labeled identifying the submittal as a "Landslide Hazard Geotechnical Verification."~~

~~1. The general critical areas report requirements in section 14.20.060.~~

~~21. The date when the geological assessment was performed. The date when the verification document was prepared.~~

~~32. The parcel number(s) of the site.~~

~~34. Site address, if the city has assigned one.~~

~~45. A detailed description of the project (including the proposed land use) and a description of the area to be developed.~~

~~256. A description of the surface and subsurface geology, hydrology, soils, and vegetation at the site and a list of the landslide hazard area indicators, as set forth in EMC 14.80.020(A), that were found on or in the vicinity of the site.~~

~~367. A summary of the results, conclusions, and recommendations resulting from the geological assessment of the landslide hazards on or in the vicinity of the site. This summary shall address all of the information required in EMC 14.80.030(B). The summary should include a description of observations during the site visit and a discussion of information obtained from review of the listed documents in EMC 14.80.030(B)(2)~~

~~478. An accurate site plan drawn at a scale of one inch equals 20 feet, one inch equals 30 feet, one inch equals 50 feet (or other scale deemed appropriate by the department) is required. The department may require that the site plan information listed below be based on a field survey by a licensed surveyor. The site plan shall include:~~

- ~~a. The limits/location of the active landslide hazard area(s) set forth in EMC 14.80.020(C)(1).~~

- b. The limits/location of the required landslide hazard buffer based upon the requirements set forth in EMC 14.80.050(A).
- c. The location of any existing and proposed structures, utilities, on-site septic systems, wells, and stormwater management facilities.
- d. The full geographical limits of the proposed project area (area to be developed).
- e. Dimension the closest distance between the identified active landslide hazard area boundary and the project area.
- f. Existing topography on the site presented in two-foot contours.
- g. Property lines for the site.
- h. North arrow and plan scale.

~~9. A paragraph that states the following specific language:~~

~~I meet the qualifications contained in EMC 14.80.030 to prepare a landslide hazard geological assessment. I understand the requirements of the current landslide hazard area Chapter 14.80-EMC and the definitions of the applicable terms contained within EMC 14.10.060. I have performed a landslide hazard geological assessment, conducted a field investigation, and researched historic records on or in the vicinity of the above referenced site and determined that no active landslide hazard area exists within 300 feet of the proposed project area.~~

~~810. The name, mailing address, and telephone number of engineering geologist/the geotechnical professional who performed the geological assessment and prepared the verification document.~~

~~911. The name, mailing address, and telephone number of the property owner.~~

B. The engineering geologist/geotechnical professional who prepared the verification document shall stamp the verification with his or her license stamp/seal.

C. Geotechnical verifications shall be in conformance with a format that is pre-approved by the department.

APPENDIX C~~B~~

GEOLOGICAL ASSESSMENT – LANDSLIDE HAZARD GEOTECHNICAL REPORT

A. At a minimum, a geotechnical report shall include the following:

~~1. The first page of the document shall clearly identify the submittal as a "Landslide Hazard Geotechnical Report."~~

~~1. The general critical areas report requirements in section 14.20.060.~~

~~21. The date when the geological assessment was performed. The date when the geotechnical report was prepared.~~

~~32. The parcel number(s) of the site.~~

~~43. Site address if the city has assigned one.~~

~~54. A detailed description of the project (including the proposed land use) and a description of the area to be developed.~~

~~625.~~ A description of the surface and subsurface geology, hydrology, soils, and vegetation of the site and a list of the landslide hazard area indicators, as set forth in EMC 14.80.020(A), that were found on or in the vicinity of the site.

~~736.~~ A summary of the results, conclusions, and recommendations resulting from the geological assessment of the landslide hazards on or in the vicinity of the site. This summary shall address all of the information required in EMC 14.80.030(B).

~~847.~~ An accurate site plan drawn at a scale of one inch equals 20 feet, one inch equals 30 feet, one inch equals 50 feet (or other scale deemed appropriate by the department) is required. The department may require that the site plan information listed below be based on a field survey by a licensed surveyor. The site plan shall include:

a. The limits/location of the ~~active~~ landslide hazard area(s) ~~within the site boundaries as set forth in EMC-14.80.020(C)(1).~~ Delineation of the ~~active~~ landslide hazard area limits shall ~~differentiate between~~ identify any areas of historic landslide activity ~~and adjacent unstable areas.~~

b. The limits/location of the required landslide hazard buffer based upon the requirements set forth in EMC 14.80.050(A).

~~c. The limits/location of any potential landslide hazard areas that have been designated as stable areas in accordance with EMC 14.80.020(C)(2)(c).~~

d. The location of any existing and proposed structures, utilities, on-site septic systems, wells, and stormwater management facilities.

e. The full geographical limits of the proposed project area (area to be developed).

f. Location and unique identifier of geotechnical borings, CPT soundings, or other surveys or explorations used to characterize subsurface conditions.

g. Extent of cross-section(s) used to evaluate the three-dimensional subsurface geologic and groundwater conditions at the site.

h. Extent of cross-section(s) used in the evaluation of slope instability.

i. Existing topography on the site presented in two-foot contours.

j. Property lines for the site.

k. North arrow and plan scale.

~~958.~~ Subsurface characterization data must be provided. The data shall be based on both existing and new information that may include soil borings, test pits, geophysical surveys, or other appropriate subsurface exploration methods, development of site-specific soil and/or rock stratigraphy, and measurement of groundwater levels including variability resulting from seasonal changes, alterations to the site, etc.

~~a. Conventional geotechnical boring data shall be reported as a graphic log utilizing the following standards:~~

~~i. The vertical scale of the graphic log shall be such that five feet of drilled depth is scaled to range of one inch to two inches (1:60 or 1:30 scale); and shall include vertical columns that record depth in one-foot increments, SPT value and incremental blow counts, a graphic pattern representation of the soil type encountered during drilling, and sample descriptions and other comments regarding drilling.~~

~~ii. The graphic log shall have a header on the first page that includes a unique identifier for the boring, the times and dates of the start and completion of drilling, the manufacturer and model of the drilling rig, the company name of the drilling contractor, the name(s) of the site geologist(s) or engineer(s) overseeing the drilling activities, the details of the method used to advance the borehole (e.g., four-inch i.d. hollow-stem auger), the type of drilling fluid used to stabilize the borehole, verification that the SPT~~

followed all applicable ASTM standards including a description of the sampler, hammer weight, drop height, the type of hammer used to perform the SPT, number of turns of rope if a cathead is used to raise the hammer, condition of rope (i.e., new, used, frayed, oily, etc.), and the depth of static groundwater measured immediately prior to abandonment of the boring and the time and date of this measurement.

iii. All subsequent pages of the graphic log shall have the unique identifier for the boring, the times and dates of the start and completion of drilling, and the number of the page and the total number of pages comprising the log.

iv. Each SPT value will be reported in the appropriate column showing the blow counts recorded at each six-inch interval, and the sum of the blow counts between penetration distances of six inches to 18 inches, unless refusal conditions (50 or more blows with less than six inches of sampler penetration) are met anywhere in this interval. At refusal, the blow count shall be recorded as the number of blows with the corresponding sampler penetration, in inches.

v. SPT tests shall be performed every five feet during drilling, at a minimum. Additional undisturbed samples, collected following ASTM standards for undisturbed soil sampling, cannot be substituted for SPT testing.

vi. The soil sample descriptions will include the total length of the recovered sample, the soil color, odor, the density or consistency (loose to very dense, very soft to very stiff), degree of water saturation (dry, moist, wet, saturated), and dilatancy. For granular (sand and gravel) soils, the description shall include a physical description of the soil sample, including size distribution (poorly or well graded), angularity, composition, amount and plasticity of the fines fraction. For fine soils (silt and clay), the description shall include a qualitative estimate of the proportion of the silt and clay size particles (e.g., silty clay, clay with some silt, etc.), plasticity, and amount and type of organic material. The sample description shall include a description of any bedding, laminations, slickensides, or other textural or deposition features, including contact between dissimilar soil types. The sample description shall also include a field classification of the soil sample using the Unified Soil Classification System where the classification is expressed in lower case letters (e.g., sp, ml, etc.). The sample classification shall be expressed in upper case letters (e.g., SP, ML, etc.) where subsequent laboratory testing has been performed. This column of the graphic log will also include any other information relevant to the subsurface investigation, such as loss of drilling fluid, heaving, churning of the drill in gravelly soils, etc.

b. CPT sounding data shall be reported as a graphic log utilizing the following standards:

i. The vertical scale of the graphic log shall be such that five feet of penetrated depth is scaled to range of one inch to two inches (1:60 or 1:30 scale), and shall include vertical columns that record depth in one-foot increments.

ii. The graphic log shall have a header on the first page that includes a unique identifier for the boring, the times and dates of the start and completion of the CPT sounding, the manufacturer and model of the CPT system, the company name of the CPT service contractor, the name(s) of the site geologist(s) or engineer(s) overseeing the CPT sounding, and any comments regarding the conduct of the testing, reaction of the CPT system during sounding, etc.

iii. All subsequent pages of the graphic log shall have the unique identifier for the boring, the times and dates of the start and completion of drilling, and the number of the page and the total number of pages comprising the log.

iv. The graphic log shall display, at a minimum, a continuous depth plot of the uncorrected tip resistance, the friction (sleeve) resistance, the friction ratio, and the measured pore pressure with an overlay of the calculated hydrostatic pore pressure. These curves shall be plotted so as to show the full variation of the measured quantities within the depth range of the sounding, and each curve shall have a visible scale with the minimum and maximum ranges labeled.

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~~v. All of the CPT data recorded for each sounding shall also be provided in either electronic or hardcopy format. Electronic data will be presented in an ASCII text file format.~~

ea. Geotechnical borings or CPT soundings will be advanced to a depth sufficient to characterize geologic conditions within and below the existing or potential landslide mass.

eb. Other methods used for subsurface characterization shall be assigned a unique identifier, and the basic data presented in appropriate graphical and/or tabular format.

ec. The three-dimensional subsurface conditions at the site shall be presented using one or more cross-sections showing location and depth penetration of geotechnical borings, CPT soundings, or other subsurface characterization methods, interpretation of the geometry of major soil units, and projected location of the static groundwater surface determined from the subsurface exploration. The cross-sections shall be presented at a scale of one inch equals 20 feet, one inch equals 30 feet, one inch equals 50 feet (or other scale deemed appropriate by the department). Each cross-section shall have a legend with a description of the various major soil units.

~~10. Soil strength and index properties (i.e., unit weight, cohesion, etc.) shall be provided for each soil unit interpreted from the subsurface characterization of the site, and shall be presented in tabular format. Justification for the presented values of these soil parameters shall be based on one or more of the following approaches:~~

~~a. Back analysis based on pre-landslide stability conditions.~~

~~b. Laboratory measurement of strength or other index properties made on soil samples.~~

~~c. Correlation of soil strength index properties to other geotechnical indices (e.g., SPT blow counts, etc.), where the correlation relations are documented (e.g., published literatures, in-house empirical data set, etc.).~~

~~d. Soil strength and indices based on generic values must provide a clear justification for their use.~~

~~1169.~~ A detailed description of any prior grading activity, soil instability, or slope failure.

~~12740. Where deemed appropriate by the geotechnical professional~~ Assessments and conclusions regarding slope stability for both the existing and developed conditions shall be presented and documented. These assessments and conclusions shall include ~~the information provided below in EMC 14.80.060, Appendix B(A)(10)(a), (b), and (c):~~. ~~The project geotechnical professional must provide justification for not including a slope stability analysis if one is excluded. The City's geotechnical professional reserves the right to request a slope stability analysis based on site conditions. If a dispute arises between the project geotechnical professional and the City's geotechnical professional regarding the need for a slope stability analysis, then the City reserves the right to require an independent, third party review to be paid for by the applicant to resolve the dispute.~~

a. Determination of the potential types of landslide failure mechanisms (e.g., debris flow, rotational slump, translational slip, etc.) that may affect the site.

b. Quantitative stability evaluation of slope conditions of the various failure mechanisms using state-of-the-practice modeling techniques. Limiting equilibrium methods of analysis shall state the stability conditions as a factor of safety. The most unstable failure geometry(ies) shall be presented in the form of a cross-section(s), with the least stable failure geometry for each failure mechanism clearly indicated. The stability evaluation shall also consider dynamic (earthquake) loading, and shall use a minimum horizontal acceleration as established by the current version of the International Building Code.

c. An analysis of slope regression rate shall be presented in those cases where stability is impacted or influenced by erosional processes (e.g., wave cutting, stream meandering, etc.) acting on the toe of the slope.

~~13811.~~ Mitigation recommendations using engineered measures to protect the proposed structure(s) and any adjacent structures, infrastructure, adjacent wetlands, or critical fish and wildlife habitat from damage or destruction as a result of proposed construction activities shall be designed by a professional engineer. Design plans and detailed geotechnical recommendations may be provided in a document separate from the geotechnical

report. When appropriate, such recommendations/plans may include, but are not necessarily limited toThe geotechnical report shall contain:

- a. Design plans and associated design calculations for engineered structures or drainage systems (e.g., structural foundation requirements, retaining wall design, etc.).
- b. Recommendations and requirements pertaining to the handling of surface and subsurface runoff in the developed condition.
- c. Identification of necessary geotechnical inspections to assure conformance with the report mitigation and recommendations.
- d. Proposed angles of cut and fill slopes, site grading requirements, final site topography (shown as two-foot contours), and the location of any proposed structures, on-site septic systems, wells, and stormwater management features or facilities associated with the development detailed within the body of the report and shown on a site map at the same scale as that required in subsection (A)(8) of this appendix.

- e. Soil compaction criteria and compaction inspection requirements.
- f. An analysis that indicates how the proposal meets the standards outlined in EMC 14.80.040.
- g. Structural foundation requirements and estimated foundation settlement shall be provided if structures are proposed.
- h. Lateral earth pressures.
- i. Suitability of on-site soil for use as fill.
- j. Mitigation measures for building construction on each lot for short plats, large lots, or formal plats such that additional geotechnical professional involvement is minimized during building construction.

B. The geotechnical report shall be prepared by an engineering geologist and shall be cowritten by both an engineering geologist and professional engineer where both geological interpretations and engineering analyses and designs are necessary or prudent in the mitigation of the landslide hazard.

C. The geotechnical professional(s) who prepared the geotechnical report shall stamp the report with his or her license stamp/seal.

D. The department may request a geotechnical professional to provide additional information in the geotechnical report based upon existing conditions, changed conditions, or unique circumstances occurring on a case-by-case basis.

E. Geotechnical reports shall be in conformance with a format that is pre-approved by the department. (Ord. 05-247 § 1; Ord. 02-200 § 2).

~~14.80.070 — Figures.~~

~~A. Figure 14.80-1, Landslide Hazard Indicators.~~

~~B. Figure 14.80-2, Potential Landslide Hazard Areas.~~

~~C.B. Figure 14.80-32, Potential Landslide Hazard Areas—Slopes Greater than 20-15 Percent.~~

~~D. Figure 14.80-4, Interim Areas Between Landslide Hazard Areas.~~

~~EC. Figure 14.80-53, Landslide Hazard Area Review.~~

~~F. Figure 14.80-6, Required Buffers for Active Landslide Hazard Areas.~~

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~~(Ord. 02-200 § 2).~~

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Chapter 14.90

SEISMIC (EARTHQUAKE) HAZARD AREAS

Sections:

- 14.90.010 Purpose.
- 14.90.020 Seismic hazard areas.
- 14.90.030 Seismic hazard area review procedures.
- 14.90.040 Seismic hazard area standards.
- 14.90.050 Buffer requirements.
- 14.90.060 Appendices.

~~14.90.070 — Figures.~~

14.90.010 Purpose.

Earthquakes have historically occurred throughout the Puget Sound region. Large earthquakes have caused loss of life and over a billion dollars in property damage. The purpose of this chapter is to protect the public health, safety, and general welfare of the citizens of Edgewood from the damaging effects of earthquakes. This chapter provides standards to ensure life safety and minimize public and private losses that may occur within a seismic hazard area. (Ord. 02-200 § 2).

14.90.020 Seismic hazard areas.

A. General. Seismic hazard areas are areas subject to severe risk of damage as a result of earthquake-induced landsliding, seismic ground shaking, dynamic settlement, fault rupture, or soil liquefaction, ~~or flooding caused by tsunamis and seiches.~~

B. Potential Seismic Hazard Areas. Potential seismic hazard areas, ~~as depicted on the Critical Areas Atlas — Seismic Hazard Areas map.~~ are those areas where the suspected risk of earthquake induced landsliding, dynamic settlement, fault rupture, ground deformation caused by soil liquefaction, or flooding is sufficient to require a further seismic hazard area review as set forth in EMC 14.90.030. These potential seismic hazard areas are determined using the following criteria:

1. Earthquake Induced Landslide Hazard Areas. Areas identified as potential landslide hazard areas in EMC 14.80.020.
2. Liquefaction and/or Dynamic Settlement Hazard Areas. Areas identified as high and moderate liquefaction and dynamic settlement hazard areas on the Washington Department of Natural Resources, Division of Geology and Earth Resources liquefaction and dynamic settlement hazard area tableGeologically Hazardous Areas map.
3. Fault Rupture Hazard Areas. ~~(Reserved).~~
4. ~~Tsunami and Seiche Hazard Areas. Areas that are adjacent to Puget Sound marine waters, lakes, and ponds that are designated as “A” or “V” zones as defined by FEMA and depicted on the FEMA maps or other maps adopted by the city.~~

C. Seismic Hazard Area Categories.

1. Earthquake Induced Landslide Hazard Areas. Earthquake induced landslide hazard areas include slopes that can become unstable as a result of strong ground shaking, even though these areas may be stable under nonseismic conditions.
2. Liquefaction and/or Dynamic Settlement Hazard Areas.
 - a. Liquefaction hazard areas are areas underlain by unconsolidated (corrected Standard Penetration Test blow counts, $[(N_1)_{60}]$ less than 30) sandy or silt soils (Unified Soil Classification System S or M soil-types)

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and a shallow groundwater table (static groundwater depth less than 30 feet) capable of liquefying in response to earthquake shaking.

b. Dynamic settlement hazard areas are areas underlain by a significant thickness (more than 10 feet) of loose or soft soil not susceptible to liquefaction (e.g., peats or organic silts and clays, unsaturated loose sands or silts), but that could result in vertical settlement of the ground surface in response to earthquake shaking.

3. Fault Rupture Hazard Areas. Fault rupture hazard areas include:

a. Active fault rupture hazard areas are areas where displacement (movement up, down, or laterally) of the ground surface has occurred during past earthquake(s) in the Holocene Epoch; and

b. Areas adjacent to the active fault rupture hazard area that may be potentially subject to ground surface displacement in a future earthquake. ~~(see EMC 14.90.070(A), Figure 14.90-1). (Ord. 02-200 § 2).~~

14.90.030 Seismic hazard area review procedures.

A. General Requirements.

1. The city's ~~Critical Areas Atlas – Seismic Hazard Area Map~~Geologically Hazardous Areas map provides an indication of where potential seismic hazard areas are located within the city.

2. The department will complete a review of the Critical Areas Atlas – Seismic Hazard Area Map for any regulated activity to determine whether the site for a proposed regulated activity is located within a seismic hazard area.

3. When the department's maps indicate that the site for a proposed regulated activity is located within a potential liquefaction or dynamic settlement hazard area, the department shall require the submittal of a geological assessment as outlined in subsection (B) of this section. ~~(see EMC 14.90.070(B), Figure 14.90-2).~~

4. When the department's maps indicate that the site for a proposed regulated activity is located within a potential fault rupture hazard area, the department shall require the submittal of a geological assessment as outlined in subsection (B) of this section. The requirement to submit a geological assessment may be waived at the department's discretion when it is determined that the proposed project area for the regulated activity is located outside the potential fault rupture hazard area.

5. When the department's maps indicate that the site for a proposed regulated activity is or may be located within a potential earthquake-induced landslide hazard area, the department shall conduct a review pursuant to the requirements set forth in EMC 14.80.030.

6. Unless otherwise stated in this chapter, the critical area protective measure provisions contained in EMC 14.10.080 shall apply.

B. Geological Assessments. A geological assessment is a site investigation process to evaluate the on-site geology affecting a subject property and define the extent and severity of potential seismic hazards.

1. A geological assessment shall be required when the department's maps, sources, or field investigation indicate a site contains a potential liquefaction, dynamic settlement, or fault rupture hazard area. Geological assessments shall be submitted to the department for review and approval together with a seismic hazard area application.

2. A geotechnical professional(s) shall complete a field investigation and geological assessment to determine whether or not the site for a proposed regulated activity is located within a liquefaction or dynamic settlement hazard area. ~~(see EMC 14.90.070(B), Figure 14.90-2).~~

~~a. The geological assessment shall be submitted in the form of a geotechnical letter when the geotechnical professional(s) finds that no liquefaction or dynamic settlement hazard areas exist within the site. The geotechnical letter shall meet the requirements contained in EMC 14.90.060, Appendix A.~~

~~ba.~~ The geological assessment shall be submitted in the form of a geotechnical verification when the geotechnical professional(s) finds that ~~a no~~ liquefaction or dynamic settlement hazard area exists ~~on the site but is located outside within~~ the proposed project area. The geotechnical verification shall meet the requirements contained in EMC 14.90.060, Appendix A.

~~eb.~~ The geological assessment shall be submitted in the form of a geotechnical report when the geotechnical professional(s) finds that a liquefaction or dynamic settlement hazard area exists within the proposed project area. The geotechnical report shall meet the requirements contained in EMC 14.90.060, Appendix A.

3. ~~An engineering geologist~~A geotechnical professional shall complete a field investigation and geological assessment presented in the form of a geotechnical report to determine whether or not the site for a proposed regulated activity is located within a fault rupture hazard area. The geological assessment shall meet the requirements contained in EMC 14.90.060, Appendix B. Any structural recommendations proposed to mitigate the fault rupture hazard that are included in the geotechnical report shall be prepared by an engineer.

4. All geological assessments for seismic hazards submitted under this chapter shall include, at a minimum, the following:

- a. The dates when the geological assessment was conducted and when the assessment was prepared.
- b. The parcel number(s) of the subject property.
- c. Site address, if the city has assigned one.
- d. A brief description of the project (including the proposed land use) and the area to be developed.
- e. A map showing the property lines for the site, existing two-foot contours of the existing site topography, and the location of any existing structures, utilities, wells, stormwater or septic systems, or other developments.
- f. A site plan delineating the limits of the proposed development and the location of all areas of the site subject to potential seismic hazards based on the ~~Critical Areas Atlas—Seismic Hazard Areas-Map~~Geologically Hazardous Areas map and, if applicable, limits of associated buffers.
- g. A description of the surface and subsurface geology, hydrology, soils, and vegetation of the site.
- h. A detailed overview of the field investigations, published data and references, data and conclusions from past geological assessments or geotechnical investigations of the site, site-specific measurements, tests, investigations, or studies, as well as the methods of data analysis and calculations that support the determination regarding whether liquefaction and/or dynamic settlement hazards are present on the site.
- i. The results, conclusions, and recommendations resulting from the geological assessment of the liquefaction and/or dynamic settlement hazards on the subject property as prepared by a geotechnical professional(s).

5. Geological assessments shall be prepared, signed, ~~stamped~~, and dated by the appropriate geotechnical professional(s) (as defined in EMC 14.10.060 and established in this chapter) and the format shall be pre-approved by the department.

6. Geological assessments that do not contain the minimum required information will be returned to the geotechnical professional(s) for revision.

7. The department shall review the geological assessment and either:

- a. Accept the geological assessment and approve the application; or
- b. Reject the geological assessment and require revisions or additional information.

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8. A geological assessment for a specific site may be valid for a period of up to five years when the proposed land use activity and surrounding site conditions are unchanged. However, if any environmental conditions associated with the site change during that five-year period, the applicant may be required to submit an amendment to the geological assessment. (Ord. 02-200 § 2).

14.90.040 Seismic hazard area standards.

A. Earthquake Induced Landslide Hazard Areas. All standards set forth in Chapter 14.80 EMC shall apply to earthquake induced landslide hazard areas.

B. Liquefaction and/or Dynamic Settlement Hazard Areas.

1. All building structures shall conform to the standards set forth in EMC Title 15, Buildings and Construction.
2. Utility Lines. Utility lines, except for gas pipelines, which are prohibited, will be permitted when no other conveyance alternative is available. The line shall be located above ground and properly anchored and/or designed so that it will continue to function in the event of seismically induced ground deformation. Provision for automatic shut-off of utilities in a ground-rupturing event will be required.
3. Roads, Bridges, and Trails. Roads, bridges, and trails shall be allowed when mitigation measures are provided that ensure the roadway prism and/or bridge structure will not be susceptible to damage from seismic induced ground deformation. Mitigation measures shall be designed for static and seismic loading conditions in accordance with the most recent version of the American Association of State Highway and Transportation Officials (AASHTO) Manual and also for an estimated range of ground surface offset presented in the geotechnical report.

C. Fault Rupture Hazard Areas. Any development, encroachment, filling, grading, or building structures shall be prohibited within fault rupture hazard areas and associated buffers except as specified in the following standards:

1. Utility Lines. Utility lines, except for gas pipelines, which are prohibited, will be permitted when no other conveyance alternative is available. The line shall be located above ground and properly anchored and/or designed so that it will continue to function in the event of seismically-induced ground deformation. Provision for automatic shutoff of utilities in a ground-rupturing event will be required.
2. Roads, Bridges, and Trails. Roads, bridges, and trails shall be allowed when all of the following conditions have been met:
 - a. Mitigation measures are provided that ensure the roadway prism and/or bridge structure will not be susceptible to damage from seismically-induced ground deformation. Mitigation measures shall be designed for static and seismic loading conditions in accordance with the most recent version of the American Association of State Highway and Transportation Officials (AASHTO) Manual and also for an estimated range of ground surface offset presented in the geotechnical report.
 - b. The road is not a sole access for a development. (Ord. 02-200 § 2).

14.90.050 Buffer requirements.

A. Determining Buffer Widths.

1. The buffer width shall be measured on a horizontal plane from a perpendicular line established at the edge of the fault rupture hazard area limits. ~~(see EMC 14.90.070(C), Figure 14.90-3).~~
2. A buffer is an area that is adjacent to a fault rupture hazard area that may be potentially subject to ground surface displacement in a future earthquake. No development shall be permitted within a fault rupture hazard area and its associated buffer. The required buffer width is the greater amount of the following distances:
 - a. Fifty feet from all edges of a fault rupture hazard area, except for high occupancy or essential facilities, where the minimum buffer distance shall be 100 feet; or
 - b. The required buffer width is the minimum distance recommended by the geotechnical professional(s).

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B. Modification of Buffer Widths. The Department may require a larger buffer width than the buffer distance, as determined in subsection (A) of this section, if the department determines the standard or proposed buffer is not adequate to protect the health, safety, or welfare of any proposed development. (Ord. 02-200 § 2).

14.90.060 Appendices.

A. Geological Assessments – Liquefaction or Dynamic Settlement Hazard Areas.

B. Geological Assessments – Fault Rupture Hazard Area Geotechnical Report.

APPENDIX A

GEOLOGICAL ASSESSMENTS – LIQUEFACTION OR DYNAMIC SETTLEMENT HAZARD AREAS

Article I. Geotechnical Letter

A. A geotechnical letter shall, at a minimum, include the following:

- ~~1. The letter shall be labeled identifying the submittal as a "Liquefaction or Dynamic Settlement Hazard Geotechnical Letter," and will include all mandatory items listed in EMC 14.90.030(B)(4).~~
- ~~2. The geological assessment must include a determination that no portion of the subject property [site] includes a liquefaction and/or dynamic settlement hazard.~~
- ~~3. A paragraph that states the following specific language:

I meet the qualifications contained in EMC 14.90.030 to prepare this geological assessment. I understand the requirements of the current seismic (earthquake) hazard areas Chapter 14.90-EMC and the definitions of the applicable terms contained within EMC 14.10.060. I have conducted an investigation of sufficient scope on the above referenced site to determine that no liquefaction and/or dynamic settlement hazard area exists within the boundaries of the proposed site.~~
- ~~4. The name, mailing address and telephone number of geotechnical professional(s) who prepared the letter.~~
- ~~5. The name, mailing address, and telephone number of the property owner.~~

~~B. The geotechnical professional(s) who prepared the geotechnical letter shall stamp the letter with his or her license stamp/seal.~~

~~C. Hold harmless clauses, disclaimers, and limitations are not allowed within a geotechnical letter.~~

Article II ~~Article I.~~ Geotechnical Verification

A. A geotechnical verification shall, at a minimum, include the following:

- ~~1. The general critical areas report requirements in EMC 14.20.060.~~
- ~~21. The first page of the document shall be labeled identifying the submittal as a "Liquefaction or Dynamic Settlement Hazard Geotechnical Verification," and geotechnical verification shall will include all mandatory items listed in EMC 14.90.030(B)(4).~~
- ~~32. The geological assessment must include a determination that a no liquefaction and/or dynamic settlement hazard exists on the site, but is located outside within the proposed project area.~~
- ~~43. The verification shall include an accurate site plan drawn at a scale of one inch equals 20 feet, one inch equals 30 feet, one inch equals 50 feet (or other scale deemed appropriate by the department) is required. The department may require that the site plan information be based on a field survey by a licensed surveyor. The site plan shall include:~~

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- a. Property lines for the site, and the location of any existing structures.
- b. ~~The existing site topography presented in two-foot contours.~~
- c. ~~The limits/location of any liquefaction and/or dynamic settlement hazard area(s) as set forth in EMC 14.90.020(C)(2).~~
- d. The full geographical limits of the proposed project area or conceptual project area (i.e., area to be developed) and the location of any proposed structures, on-site septic systems, wells, and stormwater management features or facilities associated with the development, if known.
- e. ~~The limits of any setbacks from the defined locations of the liquefaction and/or dynamic settlement hazard areas determined by the geotechnical professional(s) as necessary to protect any portion of the proposed development activity from damage caused by liquefaction induced ground displacement.~~

4. A paragraph that states the following specific language:

~~I meet the qualifications contained in EMC 14.90.030 to prepare this geological assessment. I understand the requirements of the current seismic (earthquake) hazard areas Chapter 14.90-EMC and the definitions of the applicable terms contained within EMC 14.10.060. I have conducted an investigation of sufficient scope on the above referenced site to determine that no liquefaction and/or dynamic settlement hazard area exists within the boundaries of the proposed project area.~~

~~54. The name, mailing address, and telephone number of geotechnical professional(s) who prepared the letter.~~

~~65. The name, mailing address, and telephone number of the property owner.~~

B. The geotechnical professional(s) who prepared the geotechnical verification shall stamp the verification with his or her license stamp/seal.

C. Hold harmless clauses, disclaimers, and limitations are not allowed within a geotechnical verification.

~~Article III~~ Article II: Geotechnical Report

A. A geotechnical report shall, at a minimum, include the following:

~~1. The general critical areas report requirements in EMC 14.20.060.~~

~~24. The first page of the document shall be labeled identifying the submittal as a "Liquefaction or Dynamic Settlement Hazard Geotechnical Report," and will document shall include all mandatory items listed in EMC 14.90.030(B)(4). The report shall be prepared by an engineer and shall be cowritten by an engineering geologist where geological interpretations and conclusions critical to the assessment of liquefaction and/or dynamic settlement hazard and potential effects are necessary or prudent. The introductory section of the report shall specify the desired performance level of the structures and other development facilities (e.g., safety to building occupants, minimal damage to structure, post-earthquake serviceability for pre-earthquake operations, no damage, etc.).~~

~~32. The results, conclusions, and recommendations resulting from the geological assessment of the liquefaction and/or dynamic settlement hazards on the subject property as prepared by the geotechnical professional(s).~~

~~43. The geological assessment-geotechnical report shall include:~~

- a. A statement that the proposed project area falls within a liquefaction and/or dynamic settlement hazard area.
- b. A detailed engineering evaluation of expected ground displacements or other liquefaction and/or dynamic settlement effects (e.g., bearing failures, flotation of buried tanks, etc.) and proposed mitigation measures to

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ensure an acceptable level of risk for the proposed structure type or other development facilities, as well as the proposed land use type (i.e., occupancy category). The minimum level of acceptable risk for any proposed structure or development facility shall ensure the life safety of any occupant. ~~Designs shall evaluate the range of alternatives for achieving limited structural damage to no structural damage based on the proposed use intended for the structure. Where appropriate, a range of mitigation options should be considered depending on site conditions, the intended use of the structures, and acceptable levels of settlement.~~

~~54.~~ The report shall include ~~an accurate~~ site plan drawn ~~at a~~ scale of one inch equals 20 feet, one inch equals 30 feet, one inch equals 50 feet (or other scale deemed appropriate by the department) is required. The department may require that the site plan information be based on a field survey by a licensed surveyor. The site plan shall include:

a. Property lines for the site and the location of any existing structures.

~~b. The existing site topography presented in two-foot contours.~~

~~c.b.~~ The limits/location of any liquefaction and/or dynamic settlement hazard area(s) as set forth in EMC 14.90.020(C)(2).

~~d.c.~~ The full geographical limits of the proposed project area or conceptual project area (i.e., area to be developed) and the location of any proposed structures, on-site septic systems, wells, and stormwater management features or facilities associated with the development, if known.

~~e.~~ The limits of any setbacks from the defined locations of the liquefaction and/or dynamic settlement hazard areas determined by the geotechnical professional(s) as necessary to protect any portion of the proposed development activity from damage caused by liquefaction-induced ground displacement.

~~f.d.~~ Location and unique identifier of geotechnical ~~borings and/or CPT soundings~~ explorations used to characterize subsurface conditions.

~~65.~~ The geotechnical study shall include field exploration sufficient to assess the potential for liquefaction or dynamic settlement hazards and options for mitigation of those hazards. ~~Copies of the exploration logs shall be provided in the report. The geotechnical study shall include field exploration sufficient to assess the potential for liquefaction or dynamic settlement hazards and options for mitigation of those hazards. Copies of the exploration logs shall be included in the report. The project geotechnical professional must provide justification for the scope of the field exploration program. The City's geotechnical professional reserves the right to request additional exploration if deemed appropriate. If a dispute arises between the City's geotechnical professional and the project geotechnical professional regarding the scope of the field exploration, the City reserves the right to require an independent, third party review to be paid for by the applicant to resolve the dispute. field investigation shall require the following elements:~~

~~a.~~ Subsurface characterization using conventional geotechnical borings and standard penetration testing (SPT) or using cone penetration testing (CPT).

~~b.~~ Conventional geotechnical boring data shall be reported as a graphic log utilizing the following standards:

~~i.~~ The vertical scale of the graphic log shall be such that five feet of drilled depth is scaled to range of one inch to two inch (1:60 or 1:30 scale), and shall include vertical columns that record depth in one-foot increments, SPT value and incremental blow counts, a graphic pattern representation of the soil type encountered during drilling, and sample descriptions and other comments regarding drilling.

~~ii.~~ The graphic log shall have a header on the first page that includes a unique identifier for the boring, the times and dates of the start and completion of drilling, the manufacturer and model of the drilling rig, the company name of the drilling contractor, the name(s) of the site geologist(s) or engineer(s) overseeing the drilling activities, the details of the method used to advance the borehole (e.g., four-inch i.d. hollow-stem auger), the type of drilling fluid used to stabilize the borehole, verification that the SPT followed all applicable ASTM standards

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including a description of the sampler, hammer weight, drop height, the type of hammer used to perform the SPT, number of turns of rope if a cathead is used to raise the hammer, condition of rope (i.e., new, used, frayed, oily, etc.), and the depth of static groundwater measured immediately prior to abandonment of the boring and the time and date of this measurement.

iii. All subsequent pages of the graphic log shall have the unique identifier for the boring, the times and dates of the start and completion of drilling, and the number of the page and the total number of pages comprising the log.

iv. Each SPT value will be reported in the appropriate column showing the blow counts recorded at each six-inch interval, and the sum of the blow counts between penetration distances of six inches to 18 inches, unless refusal conditions (50 or more blows with less than six inches of sampler penetration) are met anywhere in this interval. At refusal, the blow count shall be recorded as the number of blows with the corresponding sampler penetration, in inches.

v. SPT tests shall be performed every five feet during drilling, at a minimum. Additional undisturbed samples, collected following ASTM standards for undisturbed soil sampling, cannot be substituted for SPT testing.

vi. The soil sample descriptions will include the total length of the recovered sample, the soil color, odor, the density or consistency (loose to very dense, very soft to very stiff), degree of water saturation (dry, moist, wet, saturated), and dilatancy. For granular (sand and gravel) soils, the description shall include a physical description of the soil sample, including size distribution (poorly or well graded), angularity, composition, amount and plasticity of the fines fraction. For fine soils (silt and clay), the description shall include a qualitative estimate of the proportion of the silt and clay size particles (e.g., silty clay, clay with some silt, etc.), plasticity, and amount and type of organic material. The sample description shall include a description of any bedding, laminations, slickensides, or other textural or deposition features, including contact between dissimilar soil types. The sample description shall also include a field classification of the soil sample using the Unified Soil Classification System where the classification is expressed in lower case letters (e.g., sp, ml, etc.). The sample classification shall be expressed in upper case letters (e.g., SP, ML, etc.) where subsequent laboratory testing has been performed. This column of the graphic log will also include any other information relevant to the subsurface investigation, such as loss of drilling fluid, heaving, churning of the drill in gravelly soils, etc.

c. CPT sounding data shall be reported as a graphic log utilizing the following standards:

i. The vertical scale of the graphic log shall be such that five feet of penetrated depth is scaled to range of one inch to two inch (1:60 or 1:30 scale), and shall include vertical columns that record depth in one-foot increments.

ii. The graphic log shall have a header on the first page that includes a unique identifier for the boring, the times and dates of the start and completion of the CPT sounding, the manufacturer and model of the CPT system, the company name of the CPT service contractor, the name(s) of the site geologist(s) or engineer(s) overseeing the CPT sounding, and any comments regarding the conduct of the testing, reaction of the CPT system during sounding, etc.

iii. All subsequent pages of the graphic log shall have the unique identifier for the boring, the times and dates of the start and completion of drilling, and the number of the page and the total number of pages comprising the log.

iv. The graphic log shall display, at a minimum, a continuous depth plot of the uncorrected tip resistance, the friction (sleeve) resistance, the friction ratio, and the measured pore pressure with an overlay of the calculated hydrostatic pore pressure. These curves shall be plotted so as to show the full variation of the measured quantities within the depth range of the sounding, and each curve shall have a visible scale with the minimum and maximum ranges labeled.

v. All of the CPT data recorded for each sounding shall also be provided in either electronic or hardcopy format. Electronic data will be presented in an ASCII text file format.

d. All SPT or CPT testing will be conducted to a minimum depth of 50 feet below the existing ground surface or lowest proposed finished grade, except where a minimum thickness of 10 feet of consolidated soils are encountered where the $(N_1)_{60}$ is greater than 30, or CPT corrected tip resistance (q_{c1N}) is greater than 175. In

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~~addition, SPT or CPT testing should extend a minimum of 20 feet below the lowest expected foundation level, including the lowest elevation of piling support.~~

~~76. If beneficial to the assessment of seismic hazards for the project, the three-dimensional subsurface conditions at the site shall be presented using one or more cross-sections showing location and depth penetration of borings or CPT soundings, interpretation of the geometry of major soil units, and projected location of the static groundwater surface determined from the subsurface exploration. The cross-sections shall be presented at a scale of one inch equals 20 feet, one inch equals 30 feet, one inch equals 50 feet (or other scale deemed appropriate by the department). Each cross-section shall have a legend with a description of the various major soil units. The City's geotechnical professional reserves the right to request inclusion of one or more cross sections in the geotechnical report. If a dispute arises between the project geotechnical professional and the City's geotechnical professional regarding this issue, then the City reserves the right to require an independent, third party review to be paid for by the applicant to resolve the dispute.~~

~~87. All assessments of liquefaction and/or dynamic settlement hazards and effects will be based on a design earthquake using ground motion parameters consistent and equivalent to those specified in the most current version of the International Building Code. The choice of moment magnitude used in the determination of the magnitude-scaling factor, as well as the scaling relations used in the analysis, shall be justified in the report narrative. These assessments shall use the shallowest groundwater table observed during or inferred from subsurface exploration and characterization (e.g., the measured depth of static groundwater immediately prior to abandonment of borings, observation of iron-oxide mottling of soils samples, etc.).~~

~~98. Results of laboratory testing of samples retrieved during drilling and sampling shall be presented in order to support the values of fines contents used in subsequent analysis of liquefaction and/or dynamic settlement hazard. Where only CPT methods are used in site assessment, the correlation between fines content and CPT measurements will be discussed and documented. This documentation will require rigorous correlation of CPT and fines content measurements from similar geological deposits within the Puget Sound region.~~

~~109. The geotechnical report shall include a detailed assessment of the liquefaction and/or dynamic settlement hazard based on analysis of all available SPT or CPT available subsurface data using state-of-the-practice methodologies, such as provided in Youd and Idriss (1997) or subsequent technical publications. The methodology used in results of the analysis shall be documented, and all results of intermediate and final calculations and results, including factors of safety, shall be included.~~

~~1011. When appropriate, the geotechnical report shall contain include an assessment of the potential for large lateral spreads or flow failures, bearing failures, settlement, limited lateral displacement, and flotation of buried facilities. The methodologies used must be, at a minimum, state-of-the-practice, and where applicable should employ more than one method of analysis. All results of intermediate and final calculations and the conclusions regarding the potential and severity of the possible liquefaction and/or dynamic settlement induced failure modes shall be presented.~~

~~112. Alternative mitigative measures including structural and foundation design options and/or soil improvement techniques shall be evaluated and compared for their effectiveness in reaching the level of performance specified in the report introduction. Final designs and specifications and plans for structural and/or foundation design shall be included if applicable. Effectiveness of soil improvement techniques shall be specified in terms of post-treatment densification or strength improvement as measured by appropriate subsurface investigation and testing. The extent of the post-treatment verification testing shall be provided on a site map at the same scale as the map presented in subsection (A)(4) of this article. Geotechnical review of all final plans is required and the findings of the review shall be documented in writing.~~

~~12. The name, mailing address, and telephone number of geotechnical professional(s) who prepared the letter.~~

~~13. The name, mailing address, and telephone number of the property owner.~~

B. The geotechnical professional(s) who prepared the geotechnical report shall stamp the report with his or her license stamp/seal.

C. Hold harmless clauses, disclaimers, and limitations are not allowed within a geotechnical report.

APPENDIX B

GEOLOGICAL ASSESSMENTS – FAULT RUPTURE HAZARD AREA GEOTECHNICAL REPORT

A. A geotechnical report shall, at a minimum, include the following:

1. The general critical areas report requirements in EMC 14.20.060.

21. The first page of the document shall be labeled identifying the submittal as a “Fault Rupture Hazard Geotechnical Report,” and will document shall include all mandatory items listed in EMC 14.90.030(B)(4). The report shall be prepared by an engineer and shall be cowritten by an engineering geologist where geological interpretations and conclusions critical to the assessment of liquefaction and/or dynamic settlement hazard and potential effects are necessary or prudent.

2. The geological assessment for fault rupture hazards shall include the minimum requirements specified in EMC 14.90.030(B)(4).

23. The following topics should be considered and addressed in detail where essential to support opinions, conclusions, and recommendations in any geologic report on faults. It is not expected that all the topics or investigative methods would be necessary in a single investigation. In specific cases, it may be necessary to extend some of the investigative methods well beyond the site or property being investigated.

- a. Purpose and scope of investigation; description of proposed development.
- b. Geologic and tectonic setting. Include seismicity and earthquake history.
- c. Site description and conditions, including dates of site visits and observations. Include information on geologic units, graded and filled areas, vegetation, existing structures, and other factors that may affect the choice of investigative methods and interpretation of data.
- d. Methods of Investigation.
 - i. Review of published and unpublished literature, maps, and records concerning geologic units, faults, groundwater barriers, and other factors.
 - ii. Stereoscopic interpretation of aerial photographs, review of LiDAR based topography, and other remotely sensed images to detect fault-related topography (geomorphic features), vegetation and soil contrasts, and other lineaments of possible fault origin. The area interpreted usually should extend beyond the site boundaries.
 - iii. Surface observations, including mapping of geologic and soil units, geologic structures, geomorphic features and surfaces, springs, deformation of engineered structures due to fault creep, both on and beyond the site.
 - iv. Subsurface Investigations.
 - (A) Trenching and other excavations to permit detailed and direct observation of continuously exposed geologic units, soils, and structures; must be of adequate depth and be carefully logged (Taylor & Cluff 1973, Hatheway & Leighton 1979, McCalpin 1996b).
 - (B) Borings and test pits to permit collection of data on geologic units and groundwater at specific locations. Data points must be sufficient in number and spaced adequately to permit valid correlations and interpretations.
 - (C) Cone penetrometer testing (CPT) (Grant et al., 1997, Edelman et al., 1996). CPT must be done in conjunction with continuously logged borings to correlate CPT results with on-site materials. The

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number of borings and spacing of CPT soundings should be sufficient to adequately image site stratigraphy. The existence and location of a fault based on CPT data are interpretative.

v. Geophysical Investigations. These are indirect methods that require a knowledge of specific geologic conditions for reliable interpretations. They should seldom, if ever, be employed alone without knowledge of the geology (Chase & Chapman 1976). Geophysical methods alone never prove the absence of a fault nor do they identify the recency of activity. The types of equipment and techniques used should be described and supporting data presented (California Board of Registration for Geologists and Geophysicists, 1993).

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(A) High-resolution seismic reflection (Stephenson et al., 1995, McCalpin, 1996b).

(B) Ground penetrating radar (Cai et al., 1996).

(C) Other methods include: seismic refraction, magnetic profiling, electrical resistivity, and gravity (McCalpin, 1996b).

vi. Age-dating techniques are essential for determining the ages of geologic units, soils, and surfaces that bracket the time(s) of faulting (Pierce 1986, Birkeland et al., 1991, Rutter & Catto, 1995, McCalpin, 1996a).

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(A) Radiometric dating (especially ¹⁴C).

(B) Soil-profile development.

(C) Rock and mineral weathering.

(D) Landform development.

(E) Stratigraphic correlation of rocks/minerals/fossils.

(F) Other methods – artifacts, historical records, tephrochronology, fault scarp modeling, thermoluminescence, lichenometry, paleomagnetism, dendrochronology, etc.

vii. Other methods should be included when special conditions permit or requirements for critical structures demand a more intensive investigation.

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(A) Aerial reconnaissance overflights.

(B) Geodetic and strain measurements.

(C) Microseismicity monitoring.

e. Conclusions.

i. Location and existence (or absence) of hazardous faults on or adjacent to the site; ages of past rupture events.

ii. Type of faults and nature of anticipated offset, including sense and magnitude of displacement, if possible.

iii. Distribution of primary and secondary faulting (fault zone width) and fault-related deformation.

iv. Probability of, or relative potential for, future surface displacement. The likelihood of future ground rupture seldom can be stated mathematically, but may be stated in semiquantitative terms such as low, moderate, or high, or in terms of slip rates determined for specific fault segments.

v. Degree of confidence in, and limitations of data and conclusions.

f. Recommendations.

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i. The recommended increase from the standard buffer distance (50 feet) of proposed structures from fault rupture hazard areas. The recommended buffer distance generally will depend on the quality of data and type and complexity of fault(s) encountered at the site and the proposed land use type (i.e., occupancy). In order to establish an appropriate buffer distance from a fault located by indirect or interpretative methods (e.g., borings or cone penetrometer testing), the area between data points also should be considered underlain by a fault unless additional data are used to more precisely locate the fault. Additional measures (e.g., strengthened foundations, engineering design, and flexible utility connections) to accommodate warping and distributive deformation associated with faulting (Lazarte and others, 1994).

ii. Risk evaluation relative to the proposed development.

iii. Limitations of the investigation; need for additional studies.

g. References.

i. Literature and records cited or reviewed; citations should be complete.

ii. Aerial photographs or images interpreted – list type, data, scale, source, and index numbers.

iii. Other sources of information, including well records, personal communications, and other data sources.

h. Illustrations. The following illustrations should be provided:

i. A location map that identifies site locality, significant faults, geographic features, regional geology, seismic epicenters, and other pertinent data; ~~1:24,000~~1:24,000 scale is recommended.

ii. A site development map that shows site boundaries, existing and proposed structures and limits of the proposed project area, graded areas, streets, exploratory trenches, borings geophysical traverses, locations of faults, and other data; recommended scale is 1:2,400 (one inch equals 200 feet), or larger.

iii. A geologic map that shows the distribution of geologic units (if more than one), faults and other structures, geomorphic features, aerial photo graphic lineaments, and springs; on topographic map 1:24,000 scale or larger; can be combined with subsection (B)(h)(i) ~~1~~ or (ii)2 of this appendix.

iv. Geologic cross-sections, if needed, to provide three-dimensional picture.

v. Logs of exploratory trenches and borings that show details of observed features and conditions (note: these should not be generalized or diagrammatic). Trench logs should show topographic profile and geologic structure at a 1:1 horizontal to vertical scale; scale should be 1:60 (one inch equals five feet) or larger.

vi. Geophysical data and geologic interpretations.

i. Appendix. Attach any supporting data not included above (e.g., water well data, photographs, aerial photographs).

~~443.~~ The geotechnical professional who prepared the geotechnical shall stamp the report with his or her license stamp/seal.

~~554.~~ The department may request a geotechnical professional to provide additional information in the geotechnical report based upon existing conditions, changed conditions, or unique circumstances occurring on a case-by-case basis.

~~656.~~ Hold harmless clauses, disclaimers, and limitations are not allowed to be included, neither expressly nor implied, within a geological assessment. (Ord. 02-200 § 2).

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~~14.90.070 — Figures.~~

~~A. Figure 14.90-1, Fault Rupture Hazard Areas.~~

~~B. Figure 14.90-2, Seismic Hazard Area Review.~~

~~C. Figure 14.90-3, Fault Rupture Hazard Area Buffers.~~

~~(Ord. 02-200 § 2).~~

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Chapter 14.110

EROSION HAZARD AREAS

Sections:

- 14.110.010 Purpose.
- 14.110.020 Erosion hazard areas.
- 14.110.030 Erosion hazard area review procedures.
- 14.110.040 Erosion hazard area standards.
- 14.110.050 Buffer requirements.
- 14.110.060 Appendices.

~~14.110.070 — Figures.~~

14.110.010 Purpose.

The following statements describe the purpose of this chapter:

- A. Protect human life and health;
- B. Regulate uses of land in order to avoid damage to structures and property being developed and damage to neighboring land and structures;
- C. Identify and map erosion hazard areas;
- D. Minimize impacts on wetlands and critical fish and wildlife species and their associated habitat that can result from erosion;
- E. Establish a permit requirement and review procedures for development proposals in areas with potential erosion hazards;
- F. Strike a balance between the need to maintain natural shoreline erosion/regression processes and the need to protect existing and proposed development. (Ord. 02-200 § 2).

14.110.020 Erosion hazard areas.

A. Shoreline Erosion Hazard Indicators. Shoreline ~~erosion~~ hazard areas are areas potentially subject to land regression or retreat due to a combination of geologic, seismic, ~~tidally influenced,~~ and/or hydrologic or manmade factors. Shoreline hazard areas can be identified by ~~the presence of any of the following indicators:~~ indicators of active land retreat as a result of fluvial processes.

~~1. Areas with active bluff retreat that exhibit continuing sloughing or calving of bluff sediments, resulting in a vertical or steep bluff face with little or no vegetation.~~

~~2. Areas with active land retreat as a result of wave action.~~

B. Erosion Hazard Area Categories.

1. Potential Erosion Hazard Areas. Potential erosion hazard areas, as depicted on the ~~Critical Areas Atlas — Erosion Hazard Areas Map~~ Geologically Hazardous Areas map, are those areas where the suspected risk of erosion through either loss of soil, slope instability, or land regression is sufficient to require additional review to assess the potential for active erosion activity or apply additional standards. These potential erosion hazard areas are determined using the following criteria:

- a. Shoreline Erosion Hazard Areas. Areas within 200 feet of a freshwater (lake, pond, or shoreline) as measured landward perpendicularly from the edge of the ordinary high water mark. ~~(see EMC 14.110.070(A), Figure 14.110-1).~~

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b. Riverine Erosion Hazard Areas. The rivers subject to regulation as a channel migration zone listed in EMC 14.70.020(B)(45).

c. Soil Erosion Hazard Areas. Areas identified as having slopes of 20 percent or greater and that are classified as having severe, or very severe erosion potential by the Soil Conservation Service, United States Department of Agriculture (USDA).

2. Active Shoreline Erosion Hazard Areas. Land areas located directly adjacent to ~~freshwater or marine waters~~surface water bodies that, through the geological assessment process, are identified as regressing, retreating, or potentially unstable as a result of undercutting by wave action or bluff erosion. The limits of the active shoreline erosion hazard area shall extend landward to include that land area that is calculated, based on the rate of regression, to be subject to erosion processes within the next 10-year time period.

3. Riverine Erosion Hazard Areas. Riverine erosion hazard areas are located within the lateral extent of likely watercourse channel movement due to bank destabilization and erosion, rapid incision, and shifts in location of watercourse channels. Riverine erosion hazard areas are also referred to as channel migration zones (CMZs). Rivers and streams subject to erosion are regulated as a CMZ as listed in EMC 14.70.020(B)(4).

4. Soil Erosion Hazard Areas. Soil erosion hazard areas are identified by the presence or absence of natural vegetative cover, soil texture condition, slope, and rainfall patterns, or man-induced changes to such characteristics that create site conditions which are vulnerable to erosion of the upper soil horizon. Soil erosion hazard areas ~~include are~~ those areas with slopes of 20 percent or greater and that are classified as having severe, or very severe erosion potential by the ~~Soil Conservation Service, USDA~~ Natural Resources Conservation Service. (Ord. 02-200 § 2).

14.110.030 Erosion hazard area review procedures.

A. General Requirements.

1. The City's ~~Critical Areas Atlas—Erosion Hazard Area Map~~Geologically Hazardous Areas map provides an indication of where potential erosion hazard areas are located ~~within the county~~. The actual presence or location of an erosion hazard area and/or additional potential erosion hazard area that have not been mapped, but may be present on or adjacent to a site, shall be determined using the procedures and criteria established in this chapter.

2. The department will complete a review of the ~~Critical Areas Atlas—Erosion Hazard Area Map~~Geologically Hazardous Areas map, and any other source documents for any proposed regulated activity to determine whether the site for the regulated activity is located within a potential erosion hazard area.

3. When the department's maps, sources, or field investigations indicate that the site for a proposed regulated activity is located within a potential shoreline erosion hazard area, the department shall require a geological assessment as outlined in subsection (B) of this section. ~~(see EMC 14.110.070(B), Figure 14.110-2).~~

4. When the department's maps, sources, or field investigations indicate that the proposed project area for a regulated activity is located within a potential riverine erosion hazard area (channel migration zone), the department shall conduct a review pursuant to the requirements set forth in EMC 14.70.030. All standards set forth in Chapter 14.70 EMC shall apply to riverine erosion hazard areas (CMZs).

5. When the department's maps, sources, or field investigations indicate that the proposed project area for a regulated activity is located within a potential soil erosion hazard area, the department shall require submittal of an erosion control plan pursuant to the requirements set forth in EMC Title 15, Buildings and Construction.

6. Applicants requesting to develop a bulkhead along a ~~freshwater or marine~~ shoreline shall be required to submit a geotechnical report. The geotechnical report shall comply with the requirements established in EMC 14.110.060, Appendix C.

7. Unless otherwise stated in this chapter, the critical area protective measure provisions contained in EMC 14.10.080 shall apply.

B. Geological Assessment. A geological assessment is a site investigation process to evaluate the on-site geology affecting a subject property and proposed development.

1. Geological assessments shall be submitted to the department for review and approval together with a shoreline erosion hazard area application.
2. The geological assessment shall include a field investigation and may also include review of public records and documentation, analysis of historical air photos, ~~LiDAR mapping, published mapping, published~~ data and references, etc.
3. The geological assessment shall include the following information and analysis:
 - a. An analysis of the shoreline erosion processes on and in the vicinity of the site including an evaluation of erosion and ~~bluff shoreline~~ retreat that has occurred over the past decade and an estimated probable rate of erosion based upon the historic rate of erosion that has occurred on the site.
 - b. A determination of which areas on the site meet the criteria for an active shoreline erosion hazard area as set forth in EMC 14.110.020(B)(2).
 - c. A determination of the area on the site or in the vicinity of the site that will experience regression in the next 120 years given natural processes.
4. Geological assessments shall be prepared, signed, and dated by a geotechnical professional (as defined in EMC 14.10.060 and established in this chapter) and the format shall be pre-approved by the department.
5. A geotechnical professional shall complete a field investigation and geological assessment to determine whether or not an active shoreline erosion hazard area exists within 200 feet of the site. ~~(see EMC 14.110.070(B); Figure 14.110-2).~~
 - a. The geological assessment shall be submitted in the form of a geotechnical letter when the geotechnical professional finds that no active shoreline erosion hazard area exists within 200 feet of the site. The geotechnical letter shall meet the requirements contained in EMC 14.110.060, Appendix A.
 - b. The geological assessment shall be submitted in the form of geotechnical verification when the geotechnical professional finds that an active shoreline erosion hazard area exists but is located more than 200 feet away from the proposed project area. The geotechnical verification shall meet the requirements contained in EMC 14.110.060, Appendix B.
 - c. The geological assessment shall be submitted in the form of a geotechnical report when the geotechnical professional finds that an active shoreline erosion hazard area exists within 200 feet of the proposed project area or when a geotechnical professional determines that mitigation measures, such as a bulkhead, are necessary in order to construct or develop within a potential shoreline erosion hazard area. The geotechnical report shall meet the requirements contained in EMC 14.110.060, Appendix C.
6. The department shall review the geological assessment and either:
 - a. Accept the geological assessment and approve the application; or
 - b. Reject the geological assessment and require revisions or additional information.
7. A geological assessment for a specific site may be valid for a period of up to five years when the proposed land use activity and surrounding site conditions are unchanged. However, if any environmental conditions associated with the site change during that five-year period, the applicant may be required to submit an amendment to the geological assessment.

C. Riverine Erosion Hazard Area (Channel Migration Zones) Review. Riverine erosion hazard areas shall be reviewed pursuant to the requirements set forth in EMC 14.70.030.

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D. Soil Erosion Hazard Area Review. Soil erosion hazard areas shall be reviewed pursuant to the requirements set forth in EMC Title 15, Buildings and Construction. (Ord. 02-200 § 2).

14.110.040 Erosion hazard area standards.

A. Active Shoreline Erosion Hazard Areas. Any development, encroachment, filling, clearing, or grading, timber harvest, building structures, impervious surfaces, and vegetation removal shall be prohibited within active shoreline erosion hazard areas and associated buffers except as specified in the following standards:

1. Shoreline Erosion Protection Measures. Shoreline erosion protection measures located within or adjacent to freshwater or marine shorelines shall be allowed subject to the following:

- a. The proposed shoreline protection measure shall comply with the standards set forth in ~~EMC-14.40.030~~Chapter 14.40 EMC, Fish and Wildlife Habitat Conservation Areas.
- b. A geological assessment-shoreline erosion geotechnical report has been conducted in accordance with the provisions set forth in EMC 14.110.030(B) that indicates that the shoreline is currently experiencing active erosion (i.e., land retreat or regression).
- c. The use of the shoreline erosion protection measure will not cause a significant adverse impact on adjacent properties or critical fish and wildlife species and their associated habitat (i.e., increase erosion on adjacent properties).
- d. The use of soft armoring techniques (soil bioengineering erosion control measures) is the preferred method for shoreline protection.
- e. Hard armoring shoreline erosion control measures shall be approved only when a geological assessment-shoreline erosion geotechnical report, as set forth in EMC 14.110.030(B), has been completed and indicates the following:
 - i. The regression has been monitored on a yearly interval for a period of at least five consecutive years prior to allowing a bulkhead to be constructed. This monitoring shall be conducted by field survey measurements of a licensed surveyor. The department may shorten or eliminate the monitoring period if there are indicators that the regression rate is rapid and an existing structure may be threatened prior to completion of the monitoring period;
 - ii. The use of beach nourishment alone or in combination with soft armoring techniques is not adequate to protect the property from shoreline erosion processes; and
 - iii. The property contains an existing structure(s) that will be threatened within the next 10 years or the buildability of an undeveloped site will be threatened within the next 10 years if a hard armoring method of shoreline erosion protection is not provided.
- f. Hard armoring shoreline protection measures shall not be allowed when structures can be located landward of the 120-year rate of regression area.

2. Stormwater Conveyance. Surface drainage into an active shoreline erosion hazard area should be avoided. If there are no other alternatives for discharge, then drainage must be collected upland of the top of the active shoreline erosion hazard area and directed downhill in a high density polyethylene stormwater pipe with fuse welded joints that includes an energy dissipating device at the base of the active landslide hazard area. The pipe shall be located on the surface of the ground and be properly anchored so that it will continue to function in the event of an underlying slide. The number of these pipes should be minimized along the slope frontage.

3. Utility Lines. Utility lines will be permitted when no other conveyance alternative is available. The line shall be located above ground and properly anchored and/or designed so that it will continue to function in the event of an underlying slide.

4. Roads, Bridges, and Trails. Roads, bridges, and trails shall be allowed when all of the following conditions have been met:

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- a. Mitigation measures are provided that ensure the roadway prism and/or bridge structure will not be susceptible to damage from active erosion.
- b. The road is not a sole access for a development.

B. Shoreline Erosion Hazard Management Area. All regulated activities such as but not limited to building structures, impervious surfaces, vegetation removal, timber harvest, and clearing or grading activities may be allowed in areas located within 200 feet of an active shoreline erosion hazard area subject to the following standards:

1. The department reviews and approves a geological assessment – shoreline erosion hazard geotechnical report and determines that the proposed project area is located outside an active shoreline hazard area and the required buffer, as set forth in EMC 14.110.050.
2. The proposed recommendations and mitigation measures contained within the geotechnical report are adequate to reduce or mitigate risks to the natural environment, health, and safety.
3. Surface drainage from the proposed project area, including downspouts, landscape irrigation systems, and runoff from paved or unpaved surfaces upland of the shoreline, shall not be directed through an active shoreline erosion hazard area or its associated buffer unless it is conveyed in conformance with the provisions in subsection (A)(2) of this section.
4. Stormwater retention and detention systems, such as dry wells and infiltration systems utilizing buried pipe or french drains, shall not be permitted unless such systems are designed by a professional engineer and the geotechnical report indicates that such a system will not affect the stability of the shoreline.
5. Proposed developments, with the exception of shoreline erosion protection measures, shall be sited far enough from regressing shorelines to ensure 120 years of useful life for any proposed structures or infrastructure.

C. Riverine Erosion Hazard Area (Channel Migration Zones) Review. Riverine erosion hazard areas shall be reviewed pursuant to the requirements set forth in EMC 14.70.030.

D. Soil Erosion Hazard Area Review. Soil erosion hazard areas shall be reviewed pursuant to the requirements set forth in EMC Title 15, Buildings and Construction. (Ord. 02-200 § 2).

14.110.050 Buffer requirements.

A. Determining Buffer Widths.

1. The buffer width shall be measured on a horizontal plane from a perpendicular line established at the edge of the active shoreline erosion hazard area limits. ~~(see Figure 14.110-3).~~
2. An undisturbed buffer of existing vegetation shall be required for an active shoreline erosion hazard area. The required standard buffer width is the greatest amount of the ~~following~~ distances in EMC 14.110.050(A)(2)(a) and (b):
 - a. Fifty feet from all edges of the active shoreline erosion hazard area limits;
 - b. A distance of one-third the height of the slope at the top of the slope and a distance of one-half the height at the bottom of the slope; or
 - c. ~~The minimum distance recommended by the geotechnical professional measured from the edge of the active shoreline erosion hazard area. The buffer width may be reduced below the widths specified in EMC 14.110.050(A)(2)(a) and (b) or eliminated upon approval by the Department of a geotechnical report that demonstrates that such a reduction would not result in an increased risk of erosion either on or off of the subject property.~~

B. Modification of Buffer Widths. The department may require a larger buffer width than the standard buffer distance, as determined in subsection (A) of this section, if any of the following are identified through the geological assessment process:

1. The adjacent land is susceptible to severe erosion and erosion control measures will not effectively prevent adverse impacts.
2. The area has a severe risk of slope failure or downslope stormwater drainage impacts. (Ord. 02-200 § 2).

14.110.060 Appendices.

- A. Geological Assessment – Shoreline Erosion Hazard Geotechnical Letter.
- B. Geological Assessment – Shoreline Erosion Hazard Geotechnical Verification.
- C. Geological Assessment – Shoreline Erosion Hazard Geotechnical Report.

APPENDIX A

GEOLOGICAL ASSESSMENT – SHORELINE EROSION HAZARD GEOTECHNICAL LETTER

- A. A geotechnical letter shall, at a minimum, include the following:

- ~~1. The letter shall be labeled identifying the submittal as a “Shoreline Erosion Hazard Geotechnical Letter.”~~
- ~~1. The general critical areas report requirements in EMC 14.20.060.~~
- ~~2. The date when the geological assessment was conducted. The date when the letter was prepared.~~
- ~~3. The parcel number(s) of the site.~~
- ~~4. Site address, if the city has assigned one.~~
- ~~25. A brief description of the project (including the proposed land use) and a description of the area to be developed. The letter will include a summary of the findings of the site visit, a site plan, and a summary of the findings from the review of documents listed in EMC 14.110.030(B)(2). The appropriate professional preparing the geotechnical letter shall provide conclusions and recommendations as to slope/shoreline stability for the proposed development.~~
- ~~6. A paragraph that states the following specific language:~~
~~I meet the qualifications contained in EMC 14.110.030 to prepare a geological assessment. I understand the requirements of the current erosion hazard area Chapter 14.110 EMC and the definitions of the applicable terms contained within EMC 14.10.060. I have performed a shoreline erosion hazard geological assessment, conducted a field investigation, and researched available historic records on the above referenced site and determined that that no active shoreline erosion hazard area exists within 200 feet of the site.~~
- ~~76. The name, mailing address, and telephone number of the geotechnical professional who prepared the letter.~~
- ~~87. The name, mailing address, and telephone number of the property owner.~~

- B. The geotechnical professional who prepared the geotechnical letter shall stamp the letter with his or her seal.
- C. Hold harmless clauses, disclaimers, and limitations are not allowed within a geotechnical letter.

APPENDIX B

GEOLOGICAL ASSESSMENT – SHORELINE EROSION HAZARD GEOTECHNICAL VERIFICATION

- A. A geotechnical verification shall, at a minimum, include the following:

- ~~1. The cover letter for the document shall clearly identify the submittal as a “Shoreline Erosion Hazard Geotechnical Verification.”~~

~~1. The general critical areas report requirements in EMC 14.20.060.~~

~~21. The date when the geological assessment was conducted. The date when the verification was prepared.~~

~~32. The parcel number(s) of the site.~~

~~43. Site address, if the city has assigned one.~~

~~54. A detailed description of the project (including the proposed land use) and a description of the area to be developed.~~

~~625.~~ A summary of the results, conclusions, and recommendations resulting from the geological assessment, as set forth in EMC 14.110.030(B). The verification will also include a summary of the findings of the site visit, a site plan, and a summary of the findings from the review of the documents listed in EMC 14.110.030(B)(2).

~~736.~~ An accurate site plan drawn at a scale of one inch equals 20 feet, one inch equals 30 feet, one inch equals 50 feet (or other scale deemed appropriate by the department) is required. The department may require that the site plan information listed below be based on a field survey by a licensed surveyor. The site plan shall include:

- a. The limits/location of the active shoreline erosion hazard area(s) set forth in EMC 14.110.020(B)(2).
- b. The limits of the required shoreline erosion hazard buffer based upon the requirements set forth in EMC 14.110.050(A).
- c. The limits/location of the shoreline erosion hazard management area.
- d. The limits/location of the 120-year regression area.
- e. The location of any existing structures, utilities, on-site septic systems, wells, and stormwater management facilities.
- f. The location of any proposed structures, utilities, on-site septic systems, wells, and stormwater management facilities.
- g. The full geographical limits of the proposed project area (area to be developed).
- h. Dimension of the closest distance between the identified active shoreline hazard area boundary and the proposed project area.
- i. Dimension of the closest distance between the 120-year regression line and the proposed project area.
- j. Existing contours on the site at two-foot intervals.
- k. Property lines for the site.
- l. North arrow and scale.

~~8. A paragraph that states the following specific language:~~

~~I meet the qualifications contained in EMC 14.110.030 to prepare a geological assessment. I understand the requirements of the current erosion hazard area Chapter 14.110 EMC and the definitions of the applicable terms contained within EMC 14.10.060. I have performed a shoreline erosion hazard geological assessment, conducted a field investigation, and researched available historic records on the above referenced site and determined that an active shoreline erosion hazard area exists, but is located more than 200 feet away from the proposed project area.~~

~~97. The name, mailing address, and telephone number of the geotechnical professional who prepared the verification.~~

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~~108. The name, mailing address, and telephone number of the property owner.~~

B. The geotechnical professional who prepared the geotechnical verification shall stamp the verification with his or her seal.

C. Hold harmless clauses, disclaimers, and limitations are not allowed within a geotechnical verification.

APPENDIX C

GEOLOGICAL ASSESSMENT – SHORELINE EROSION HAZARD GEOTECHNICAL REPORT

A. A geotechnical report shall, at a minimum, include the following:

~~1. The cover letter for the document shall clearly identify the submittal as a “Shoreline Erosion Hazard Geotechnical Report.”~~

~~1. The general critical areas report requirements in EMC 14.20.060.~~

~~21. The date when the geological assessment was conducted. The date when the verification was prepared.~~

~~32. The parcel number(s) of the site.~~

~~43. Site address, if the city has assigned one.~~

~~54. A detailed description of the project (including the proposed land use) and a description of the area to be developed.~~

~~625.~~ A summary of the results, conclusions, and recommendations resulting from the geological assessment, as set forth in EMC 14.110.030(B). ~~The report will also include a summary of the findings of the site visit, a site plan, and a summary of the findings from the review of documents listed in EMC 14.110.030(B)(2).~~ ~~The~~ The summary shall specifically address:

a. Whether it is possible given the physical constraints of the property (size, shape, building setbacks, utility requirements, etc.) to locate the proposed development outside of the 120-year area of regression based on natural shoreline processes.

b. If it is not possible to locate the development outside of the 120-year area of regression (based on natural processes), determine whether beach nourishment and/or soft armoring techniques can be used to slow the rate of regression such that the proposed development is no longer within the 120-year regression area.

c. If it is not possible to locate the development outside of the ~~120-year~~120-year area of regression (based on the use of beach nourishment and/or soft armoring techniques), outline the strategy, as set forth in EMC 14.110.040(A)(1), to monitor the rate of regression on the site.

d. Determine whether any proposed shoreline erosion protection measures will cause an increase in the rate of regression on neighboring properties.

~~736.~~ An accurate site plan drawn at a scale of one inch equals 20 feet, one inch equals 30 feet, one inch equals 50 feet (or other scale deemed appropriate by the department) is required. The department may require that the site plan information listed below be based on a field survey by a licensed surveyor. The site plan shall include:

a. The limits/location of the active shoreline erosion hazard area(s) set forth in EMC 14.110.020(B)(2).

b. The limits of the required shoreline erosion hazard buffer based upon the requirements set forth in EMC 14.110.050(A).

c. The limits/location of the shoreline erosion hazard management area.

- d. The limits/location of the 120-year regression area based on natural shoreline processes and, if applicable, based upon proposed shoreline protection measures.
- e. The location of any existing structures, utilities, on-site septic systems, wells, and stormwater management facilities.
- f. The location of any proposed structures, utilities, on-site septic systems, wells, and stormwater management facilities.
- g. The full geographical limits of the proposed project area (area to be developed).
- h. Dimension of the closest distance between the identified active shoreline hazard area boundary and the proposed project area.
- i. Dimension of the closest distance between the 120-year regression line and the proposed project area.
- j. Existing contours on the site at two-foot intervals.
- k. Property lines for the site.
- l. North arrow and scale.

~~847.~~ A discussion of any proposed shoreline protection measures including design and construction drawings is required.

~~958.~~ A list of references utilized in preparation of the report.

~~109. The name, mailing address, and telephone number of the geotechnical professional(s) who prepared the report.~~

~~110. The name, mailing address, and telephone number of the property owner.~~

B. The geotechnical professional(s) who performed the geological assessment shall stamp the report with his or her license stamp/seal. The report must be co-authored by a licensed professional engineer when engineering designs or interpretations are necessary to address the report requirements. The engineer must also stamp the report with his or her license stamp/seal.

C. The department may request a geotechnical professional to provide additional information in the geotechnical report based upon existing conditions, changed conditions, or unique circumstances occurring on a case-by-case basis.

D. Hold harmless clauses, disclaimers, and limitations are not allowed within a geotechnical report.

E. Geotechnical reports shall be in conformance with a format that is pre-approved by the department. (Ord. 02-200 § 2).

~~14.110.070—Figures.~~

~~A. Figure 14.110-1, Potential Erosion Hazard Area.~~

~~B. Figure 14.110-2, Shoreline Erosion Hazard Area Review.~~

~~C. Figure 14.110-3, Active Shoreline Erosion Hazard Area Buffers.~~

..

~~(Ord. 02-200 § 2).~~

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Chapter 14.500

NATURAL RESOURCE LANDS

Sections:

14.500.010	Purpose.
14.500.020	Intent.
14.500.030	Applicability.
14.500.031	Mineral resource lands designation.
14.500.040	Natural resource lands noticing requirements.
14.500.050	Current use assessment.
14.500.060	Variances and appeals.
14.500.070	Review process.
14.500.080	Title, plat, and regulated activities notification.
14.500.090	Permitted uses.
14.500.100	Appendices.

14.500.010 Purpose.

This chapter establishes requirements and regulations to protect natural resource lands and is established pursuant to WAC 197-11-908 and RCW 36.70A.170 and 36.70A.060. The city therefore designates agricultural lands and mineral resource lands, and all associated buffers as being environmentally sensitive areas and designated natural resource lands. By regulating development ~~within, and adjacent to, or abutting~~ within 500 feet of natural resource lands, this title seeks to implement the following goals and policies to:

- A. Inform the public of the existence, location and potential incompatibility impacts of development on, or ~~adjacent to~~ within 500 feet of, these environmentally sensitive areas within the city.
- B. Encourage the retention of open space, development of recreational opportunities, conserve priority habitat, increase access to natural resource lands and water, and develop parks.
- C. Assure the conservation of resource lands and related activities by limiting encroachment of incompatible development thereon.
- D. Promote the conservation of mineral resource lands through inclusion of known deposits of minerals and materials.
- E. Assure that undeveloped mineral and material resources will not be forever lost by prior development of the land for other purposes.
- F. Allow for the necessary mineral processing to convert such minerals and materials into marketable products.
- G. Protect the environment and enhance the state's high quality of life, including air and water quality and the availability of water.
- H. Maintain and enhance the biological and physical functions and values of wetlands. (Ord. 02-200 § 2).

14.500.020 Intent.

Resource lands are of special concern to the citizens, the city, and the state. The intent of this chapter is to conserve resource lands by establishing standards for development of sites which contain, or ~~are adjacent to~~ are within 500 feet of, resource lands to promote the public health, safety, and welfare by:

- A. Noticing of property on, or within, natural resource land areas;
- B. Mitigating unavoidable impacts by regulating development;
- C. Protecting from development impacts;

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D. Protecting the public against losses from:

1. Costs of public emergency rescue and relief operations where the causes are avoidable;
2. Degradation of the natural environment and the expense associated with repair or replacement;

E. Preventing adverse impacts on water availability, water quality, wetlands, and streams;

F. Protecting unique, fragile, and valuable elements of the environment, including fish and wildlife habitat;

G. Providing sufficient information to show that critical areas are adequately protected prior to approving, conditioning, or denying public or private development activity;

H. Providing the public with sufficient information and notice of potential risks associated with development in critical and sensitive areas;

I. Implementing the goals and requirements of the Growth Management Act (RCW 36.70A.060)~~Growth Management Act of 1990, the State Environmental Policy Act, the Puget Sound Water Quality Management Plan, the Pierce County Charter, the Pierce County Growth Management Policies,~~ the city of Edgewood comprehensive plan, and all updates and amendments, functional plans, and other land use policies formally adopted or accepted by the city. (Ord. 02-200 § 2).

14.500.030 Applicability.

This chapter shall apply to all properties designated as resource lands (agricultural lands or mineral resource lands) or properties ~~adjacent to~~within 500 feet of designated resource lands within Edgewood. When the requirements of this title are more stringent than those of other local, state or federal law, codes, or regulations, the requirements of this title shall apply.

A. Agricultural Lands. Lands that are not already characterized by urban growth and that have long-term significance for the commercial production of food or other agricultural products. Agricultural lands are those lands meeting all of the following criteria:

1. Lands in parcels which are 10 acres or larger in size;
2. Lands which are on prime or unique soils as identified in:
 - a. United States Department of Agriculture (USDA), Soil Conservation Service, February 1979, Soil Survey of Pierce County Area, Washington; or
 - b. USDA, Soil Conservation Service, June 1981, Important Farmlands of Pierce County, Washington;
 - c. Lands which are primarily devoted to the commercial production of horticultural, viticultural, floricultural, dairy, apiary, vegetable, or animal products or of berries, grain, hay, straw, turf, seed, Christmas trees not subject to the excise tax imposed by RCW 84.33.100 through 84.33.140, or livestock, and which have long-term commercial significance for agricultural production; and
 - d. Lands which are not ~~adjacent to~~within 500 feet of lots of record of one acre or less on more than 50 percent of the perimeter of the parcel.

B. Mineral Resource Lands. Mineral resource lands shall be identified by the city using the criteria set forth in WAC 365-190-070 as now exists or as may hereafter be amended or modified.

C. Property Adjacent to Resource Lands. All plats, short plats, development permits, and building permits issued for development activities within 500 feet of lands designated as natural resource lands shall contain a notice that a variety of commercial activities may occur that are not compatible with residential development for certain periods of limited duration. (Ord. 04-221 § 1; Ord. 02-200 § 2).

14.500.031 Mineral resource lands designation.

A. The city has classified the following areas as potential mineral resource lands based on the criteria in EMC 14.500.030(B).

1. Parcels: 0420164023, 0420164024, 0420164016 (commonly known as Olson); and
2. Parcels: 0420162047, 0420162048 (commonly known as Josties); and
3. Parcels: 0420084072, 0420084002, 0420084005, 0420084069, 0420084068, 0420171073, 0420171057, 0420171000, 0420171059 (commonly known as Fife Sand and Gravel).

B. The city staff shall study each area and prepare a written analysis of each area.

C. The city council's land use and economic development committee shall review the staff analysis and either send the analysis back to staff for clarification or recommend approval/denial of each area as a mineral resource land to the city council. The staff analysis and land use and economic development committee's recommendation shall be forwarded to the city council for review and action.

D. The city council shall review the staff analysis and recommendation(s) of the land use committee and shall, by ordinance, approve, deny or modify the particular study area designation using the criteria in EMC 14.500.050(B). (Ord. 04-234 § 1).

14.500.040 Natural resource lands noticing requirements.

Pursuant to RCW 36.70A.060, the city shall require that all plats, development applications, or permits issued for development activities on, abutting, or within 500 feet of lands designated as natural resource lands contain a notice (see Appendices A through C).

A. General. If more than one natural resource land subject to the provisions of this title intersects the subject parcel, then one notice addressing all of the natural resource areas shall be sufficient.

B. Title Notification.

1. When the city determines that activities not exempt from this title are proposed, the owner shall file a notice with the Pierce County auditor (Appendices A through C). The notice shall provide a public record of the presence of the sensitive area(s); the application of this title to the property; and any limitations on activity in or affecting such sensitive area.
2. The notice shall be notarized and recorded with the Pierce County auditor before approval of any regulated use or activity on the site.

C. Plat Notification. For all proposals requiring a plat within sensitive areas, the applicant shall note the face of the plat consistent with the language set forth in Appendices A through C.

D. Permit Notification. The department shall require that all permits issued for regulated activities ~~within or adjacent to~~ on or within 500 feet of natural resource lands contain a notice as set forth in Appendices A through C. (Ord. 02-200 § 2).

14.500.050 Current use assessment.

A. An owner of natural resource lands or open space desiring current use classification under Chapter 84.40 RCW may file for such current use classification.

B. An owner of undeveloped land with critical areas which has been placed in a separate tract or tracts, protective easement, public or private land trust dedication, or other similarly preserved area for the protection of these critical areas may have that portion of land reviewed for reassessment by the assessor-treasurer's office consistent with those restrictions to determine the fair market value of the land pursuant to RCW 84.40.030.

C. The owner shall notify the assessor-treasurer's office when restrictions on development occur on a particular site, and shall provide a plat map in addition to the following, or other special study documents as may be required by the department.:

- ~~1. Wetland delineation; and/or~~
- ~~2. Geotechnical study; and/or~~
- ~~3. Priority habitat studies; and/or~~
- ~~4. Special studies as determined by the department. (Ord. 02-200 § 2).~~

14.500.060 Variances and appeals.

Procedures for variances and appeals of an administrative decision issued pursuant to this chapter are set forth in EMC 18.40.090, Process II, Administrative action. (Ord. 02-200 § 2).

14.500.070 Review process.

A. The department shall review any permit or application requested for any regulated activity, including, but not limited to, those set forth in EMC 14.500.010 on a site which includes, or ~~is adjacent to or within 500 feet of, or abutting~~ one or more resource land is located, unless otherwise provided in this title.

B. As part of all development applications, the department shall review the information submitted by the applicant to:

1. Confirm the nature and type of the resource land and evaluate any required title, plat, and/or regulated activity notification;
2. Determine whether the development proposal is consistent with this title; and
3. Determine whether any proposed alterations to the site containing resource lands are necessary.

C. The city may approve, approve with conditions, or deny any development proposal in order to comply with the requirements and carry out the goals, purposes, objectives, and requirements of this title.

D. Approval of a development proposal does not discharge the obligation of the applicant to comply with the provisions of this title. (Ord. 02-200 § 2).

14.500.080 Title, plat, and regulated activities notification.

A. If more than one resource land subject to the provisions of this title exists on the site, then one notice addressing all of the resource lands shall be sufficient.

B. Notification shall be approved by the department and shall be consistent with the forms set forth in EMC 14.500.100, Appendices A through C as applicable.

C. Title notifications shall be notarized and recorded with the Pierce County auditor prior to approval of any regulated use or activity for the site. (Ord. 02-200 § 2).

14.500.090 Permitted uses.

Uses permitted on designated resource land sites shall be the same as those permitted in the zone classifications shown on the city zoning map. (Ord. 02-200 § 2).

14.500.100 Appendices.

A. Property Adjacent to Resource Lands.

B. Agriculture Lands Noticing.

C. Mineral Resource Lands Noticing.

APPENDIX A

PROPERTY ADJACENT TO RESOURCE LANDS

A. Title Notification.

Parcel Number: _____

Site Address: _____

NOTICE: This parcel lies within 500 feet of land designated resource lands by Edgewood. A variety of commercial and industrial activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of chemicals, or from spraying or extraction which occasionally generates dust, smoke, noise, and odor. The city has established resource uses as priority uses on productive resource lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary commercial resource lands operations.

Signature of Owner

(NOTARY ACKNOWLEDGMENT)

B. Plat Notification. The owner of any site within 500 feet of land designated as resource lands on which a large lot, short subdivision, or formal subdivision is submitted, shall record a notice on the face of the plat. Such notification shall be in the form as set forth below:

PROPERTY ADJACENT TO RESOURCE LANDS PLAT NOTIFICATION. This property lies within 500 feet of land designated resource lands by Edgewood. A variety of commercial and industrial activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of chemicals, or from spraying or extraction which occasionally generates dust, smoke, noise, and odor. The city has established resource uses as priority uses on productive resource lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary commercial resource lands operations.

C. Regulated Activities Notification. The department shall require that permits issued for regulated activities, as defined in Chapter 14.500 EMC, within 500 feet of lands designated as resource lands, contain a notice as set forth below.

REGULATED ACTIVITIES NOTIFICATION. This property lies within 500 feet of land designated resource lands by Edgewood. A variety of commercial and industrial activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of chemicals, or from spraying or extraction which occasionally generates dust, smoke, noise, and odor. The city has established resource uses as priority uses on productive resource lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary commercial resource lands operations.

APPENDIX B

AGRICULTURAL LANDS NOTICING

A. Title Notification.

Parcel Number: _____

Site Address: _____

The Edgewood Municipal Code is current through Ordinance 17-498, passed April 11, 2017.

NOTICE: This parcel lies within ~~an~~ **500 feet of an** area identified as agricultural lands by Edgewood. A variety of commercial agricultural activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of agricultural chemicals, including herbicides, pesticides, and fertilizers; or from spraying, pruning, and harvesting which occasionally generate dust, smoke, noise, and odor. Edgewood has established agriculture as a priority use on productive agricultural lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary farm operations.

Signature of Owner

Signature of Owner

(NOTARY ACKNOWLEDGMENT)

B. Plat Notification. The owner of any site within this designation on which a large lot, short subdivision, or formal subdivision is submitted, shall record a notice on the face of the plat. Such notification shall be in the form as set forth below.

AGRICULTURAL LANDS PLAT NOTIFICATION. This parcel lies within an area identified as agricultural lands by Edgewood. A variety of commercial agricultural activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of agricultural chemicals, including herbicides, pesticides, and fertilizers; or from spraying, pruning, and harvesting which occasionally generate dust, smoke, noise, and odor. The city has established agriculture as a priority use on productive agricultural lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary farm operations.

C. Regulated Activities Notification. The department shall require that all permits issued for regulated activities, as defined in Chapter 14.500 EMC, within this zone classification contain a notice as set forth below.

REGULATED ACTIVITIES NOTIFICATION. This parcel lies within **500 feet of an** area identified as agricultural lands by Edgewood. A variety of commercial agricultural activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of agricultural chemicals, including herbicides, pesticides, and fertilizers; or from spraying, pruning, and harvesting which occasionally generate dust, smoke, noise, and odor. The city has established agriculture as a priority use on productive agricultural lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary farm operations.

APPENDIX C

MINERAL RESOURCE LANDS NOTICING

A. Title Notification.

Parcel Number: _____

Site Address: _____

NOTICE: This parcel lies within **500 feet of an** area of land designated mineral resource lands by the city. A variety of commercial mineral extraction activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of heavy

The Edgewood Municipal Code is current through Ordinance 17-498, passed April 11, 2017.

equipment, chemicals, and spraying which may generate dust, smoke, and noise associated with the extraction of mineral resources. Edgewood has established mineral resource extraction as a priority use on productive mineral resource lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary mineral resource extraction operations.

Signature of Owner

(NOTARY ACKNOWLEDGMENT)

B. Plat Notification. The owner of any site within this overlay district on which a large lot, short subdivision, or formal subdivision is submitted, shall record a notice on the face of the plat. Such notification shall be in the form as set forth below:

MINERAL RESOURCE LANDS PLAT NOTIFICATION. This property lies within 500 feet of an area of land designated mineral resource lands by the city of Edgewood. A variety of mineral resource extraction activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of heavy equipment, chemicals, and spraying which may generate dust, smoke, and noise associated with the extraction of mineral resources. Edgewood has established mineral resource extraction as a priority use on productive mineral resource lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary mineral resource extraction lands.

C. Regulated Activities Notification. The department shall require that all permits issued for regulated activities, as defined in Chapter 14.500 EMC, within this designation contain a notice as set forth below:

REGULATED ACTIVITIES NOTIFICATION. This property lies within 500 feet of an area of land designated mineral resource lands by Edgewood. A variety of mineral resource extraction activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of chemicals and extraction of minerals, which occasionally generates dust, smoke, noise, and odor. The city has established mineral resource extraction as a priority use on productive mineral resource lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary mineral resource extraction lands.

(Ord. 02-200 § 2).

Title 14
CRITICAL AREAS

Chapters:

- 14.10 General Provisions**
- 14.15 Definitions**
- 14.20 Use and Activity Regulations**
- 14.30 Wetlands**
- 14.40 Critical Fish and Wildlife Habitat Areas**
- 14.50 Aquifer Recharge and Wellhead Protection Areas**
- 14.60 Volcanic Hazard Areas**
- 14.70 Flood Hazard Areas**
- 14.80 Landslide Hazard Areas**
- 14.90 Seismic (Earthquake) Hazard Areas**
- 14.110 ~~Erosion Hazard Areas~~**
- 14.500 ~~Natural Resource Lands~~**

Chapter 14.10
GENERAL PROVISIONS

Sections:

- 14.10.010 Authority.
- 14.10.030 Purpose.
- 14.10.040 Interpretation.
- 14.10.050 Applicability.
- 14.10.070 Administration.
- 14.10.075 Relationship to Other Regulations.
- 14.10.080 Critical area protective measures.
- 14.10.082 Critical areas reports
- 14.10.083 Mitigation plans
- 14.10.085 Variances to critical areas.
- 14.10.090 Reconsideration and appeal procedures.
- 14.10.100 Fees.
- 14.10.110 Compliance.
- 14.10.120 Warning and disclaimer of liability.
- 14.10.130 Severability.
- 14.10.135 Violation – Civil infraction.
- 14.10.140 Appendix.

14.10.010 Authority.

A. This title is established and adopted pursuant to the Growth Management Act (RCW 36.70A.060).

B. As provided herein, the director or his/her designee is given the authority to interpret and apply, and the responsibility to enforce this title to accomplish ~~the purposes~~the purposes identified in EMC 14.10.030.

14.10.030 Purpose.

The purpose of this title is to protect environmentally sensitive critical areas of Edgewood from the impacts of development and protect development from the impacts of hazard areas by establishing minimum standards for development of sites which contain or are adjacent to identified critical areas and thus promote the public health, safety, and welfare by:

- A. Avoiding impacts to critical areas;
- B. Mitigating unavoidable impacts by regulating development;
- C. Protecting critical areas from impacts of development;
- D. Protecting the public against losses from:
 - 1. Costs of public emergency rescue and relief operations where the causes are avoidable; and
 - 2. Degradation of the natural environment and the expense associated with repair or replacement;
- E. Preventing adverse impacts on water availability, water quality, wetlands, and streams;
- F. Protecting unique, fragile, and valuable elements of the environment, including critical fish and wildlife habitat;
- G. Providing department staff with sufficient information to adequately protect critical areas and proposed development when approving, conditioning, or denying public or private development proposals;

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H. Providing the public with sufficient information and notice of potential risks associated with development in natural hazard critical areas; and

I. Implementing the goals and requirements of the Growth Management Act (RCW 36.70A.060) and the city of Edgewood comprehensive plan, and all updates and amendments, functional plans, and other land use policies formally adopted or accepted by the city of Edgewood.

14.10.040 Interpretation.

In the interpretation and application of this title, all provisions shall be:

- A. Considered the minimum necessary;
- B. Liberally construed to serve the purposes of this title; and
- C. Deemed neither to limit nor repeal any other powers under state statute. (Ord. 02-200 § 2).

14.10.050 Applicability.

A. This title shall apply to all lands and waters within Edgewood that are designated as critical areas and their corresponding buffers and setbacks.

B. No development (see “development” definition) shall hereafter take place without full compliance with the terms of this title.

C. When the requirements of this title are more stringent than those of other Edgewood codes and regulations, including the International Building Code, the requirements of this title shall apply.

D. Compliance with these regulations does not remove an applicant’s obligation to comply with applicable provisions of any other federal, state, or local law or regulation.

E. Criteria for determining critical areas is contained within each chapter of this title.

F. When a site contains two or more critical areas, the site shall meet the minimum standards and requirements for each identified critical area as set forth in this title.

G. Critical areas, as defined and regulated by this title, are identified, but not limited to the following Edgewood critical areas maps:

1. Wetlands;
2. Geologically hazardous areas;
3. Critical aquifer recharge areas;
4. Streams; and
5. Frequently flooded areas.

H. The exact boundary of each critical area depicted on the City’s critical areas maps is approximate and is only intended to provide an indication of the presence of a critical area on a particular site. Additional critical areas that have not been mapped may be present on a site. The actual presence of a critical area, or areas and the applicability of these regulations shall be determined based upon the classification or categorization criteria and review procedures established for each critical area. City staff and/or consultant(s) may conduct on-site inspections to assess the site in order to determine if additional studies or reports identified in this title are necessary. An inspection report of findings shall be written after the on-site inspection and will become a part of any site development application as a future reference.

I. The Edgewood critical areas atlas maps shall be updated and maintained by the city's department of community development geospatial information system (GIS) division.

14.10.070 Administration.

A. Critical Areas Permit or Approval Required. In order to conduct any development activity on any property located within three hundred (300) feet of a critical area (as each critical area is defined in each chapter of this Title, or as shown on the City's Critical Areas Map), a Critical Areas Permit or an Approval must be obtained from the City.

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B. Critical Areas Approval.

1. If the City requires that another permit application be submitted under a different code chapter in order to allow the proposed development activity (the underlying application), then a separate Critical Areas Permit is not required. Instead, the City shall review the underlying application, together with the application materials required in Section _____ herein, to determine compliance or noncompliance with this title. The determination on such compliance or noncompliance shall be incorporated within the decision on the underlying application.

2. In addition to the materials required to make the underlying application complete (as required by the City's code outside of this Title), the applicant shall also submit the materials set forth in Section _____ herein, where the subject property is within three hundred (300) feet of a critical area. The City shall not issue a determination that the underlying application is complete until the materials set forth in Section _____ have been submitted.

3. The process for review of the underlying application and critical areas approval shall be the same as the Process to be followed for the underlying application, as set forth in EMC Section _____

C. Critical Areas Permit.

1. If the City does not require any other permit in order to allow the proposed development activity, the applicant shall be required to obtain a separate Critical Areas Permit in order for the proposed development activity to proceed.

2. A complete application for a Critical Areas Permit shall consist of the materials set forth in EMC Section 14.10.070(D) below.

3. The process for review of a Critical Area Permit is the Type II Process, as set forth within EMC 18.40.090.

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D. Elements of a Complete Permit Application. A complete application for Approval or a Critical Areas Permit under this Title shall consist of the following materials:

1. A completed permit/approval application form, which must be signed by the record owner of the property (the person(s) whose name is on the most recently recorded deed or contract purchaser with written permission from the record owner). An application form may be signed by an agent for the record owner, as long as the application is also accompanied by a verified statement signed by the record owner, which specifically authorizes the agent to submit the application on the record owner's behalf.

2. The street address and/or a legal description of the subject property;

3. A complete description of the proposed development activity;

4. (Where in each of the chapters relating to the different critical areas does it list the information that must be submitted for a complete application for a proposed development activity within that particular critical area?)

5. The required application fee.

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Approvals Required. An approval must be obtained from the city when the department determines that the site or project area is or may be located within 300 feet of a critical area, as set forth in each chapter.

B. Application Requirements.

1. Preliminary Review. The provisions for conducting a preliminary review of an application is set forth in EMC 18.40.070, Process types.

2. Application Filing.

a. Applications shall be reviewed for completeness in accordance with department submittal standards-checklists and pursuant to EMC 18.40.150, Determination of completeness or as outlined within section c. below.

b. Applications and associated reports shall not be submitted without an accompanying permit application for an underlying action, such as, but not limited to, a building permit, subdivision or boundary alteration action, site development application, TPCHD permit, or use permit, with the exception of applications required by the department as a result of an enforcement action or reports required by TPCHD for septic design approval.

c. In cases where no accompany permit applications are required for potentially regulated activities within a critical area, a separate critical areas permit application shall be filed and include the following items in order to be deemed a complete application:

i. A completed Critical Area Permit Application;

ii. Submittal and review criteria and standards of this title, as outlined within each section of the specific critical area potentially being impacted;

iii. Associated Critical Area Permit Fee, as outlined within EMC 14.10.100.

iv. Review for a Critical Area Permit shall follow a Type II Process, as outlined within EMC 18.40.0980.

3. Modifications. The department may request an update of any required assessment, report, delineation, etc., due to the potential for change in the existing environment that may have been caused by a natural event (e.g., seismic event, landslides, flooding, etc.) or human induced activity that degraded the existing conditions that occurred after the original document was initially submitted.

C. Public Notice. Public notice provisions for notice of application; public hearing, if applicable; and final decision pursuant to this title are outlined in EMC 18.40.190, Notice of public hearing.

D. Review.

1. Initial Review. The department shall conduct an initial review of any application in accordance with the provisions outlined in EMC 18.40.150, Determination of completeness.

2. Review Responsibilities.

a. The department is responsible for administration, circulation, and review of any applications and approvals required by this title.

b. The City Council shall be the decision authority for reasonable use applications.

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c. Other city or county departments and state agencies, as determined by the department, may review an application and forward their respective recommendations to the director or hearing examiner, as appropriate.

3. Review Process.

a. The department shall perform a critical area review for any building or land use application submitted for a regulated activity, including, but not limited to, those set forth in EMC 14.20.020. Reviews for multiple critical areas shall occur concurrently.

b. The department shall, to the extent reasonable, consolidate the processing of related aspects of other city regulatory programs which affect activities in regulated critical areas, such as subdivision or site development, with the approval process established herein so as to provide a timely and coordinated review process.

c. As part of the initial review of all development or related approvals or permit applications, the department shall review the information submitted by the applicant to:

i. Confirm the nature and type of the critical area and evaluate any required assessments, reports, or studies;

ii. Determine whether the proposal for the development activity/proposal is consistent with this title;

iii. Determine whether any proposed alterations to the site containing critical areas are necessary; and

iv. Determine if the mitigation and monitoring plans proposed by the applicant are sufficient to protect the public health, safety, and welfare consistent with the goals, purposes, objectives, and requirements of this title.

d. Regulated activities subject to SEPA shall also be reviewed with consideration for impacts on critical areas as identified in this title. Regulated activities that pose a significant adverse impact which are not addressed by the standards and criteria established in this title (gaps), may be subject to additional mitigation measures as determined through the SEPA process. A threshold determination issued pursuant to EMC Title 20, SEPA, may not be made prior to departmental review of any special studies or technical reports required by this title, except where the applicant requests a declaration of significance so that environmental review is required.

d. Critical area applications required under this title shall be approved prior to approval of any underlying permit action such as, but not limited to, a building permit, subdivision approval, site development forest practice application, or identified use permit.

e. The requirement to submit a critical area assessment, report, etc., required under this title, outlined within each critical area heading herein, may be waived at the department's discretion when the proposed project area for a regulated activity is located in an area that has been the subject of a previously submitted and approved assessment, report, etc., if all of the following conditions have been met:

- i. The provisions of this title have been previously addressed as part of another approval;
- ii. There has been no material change in the potential impact to the critical area or required buffer since the prior review;
- iii. There is no new information available that is applicable to any critical review of the site or particular critical area;
- iv. The permit or approval has not expired or, if there is no expiration date, no more than five years have elapsed since the issuance of that permit or approval; and

v. Compliance with any standards or conditions placed upon the prior permit or approval has been achieved or secured.

4. Burden of Proof. The applicant has the burden of proving that a proposed application complies with the standards set forth in this title.

5. Final Decision.

a. The department may approve, approve with conditions, or deny ~~any critical~~ any critical areas permit application or underlying application for development in a critical area in order to comply with the requirements and carry out the goals, purposes, objectives, and requirements of this title based on the decision-makers' evaluation of the ability of any proposed mitigation measures to reduce risks associated with the critical area and compliance with required standards. Approval of a development proposal does not discharge the obligation of the applicant to comply with the provisions of this title.

b. Applicants shall comply with the recommendations and/or mitigation measures contained in final approved assessments or reports and incorporated into any final decision and conditions of approval.

c. ~~Approval of an application required under this title must be given prior to the start of any development activity on a site. No development activity shall be performed on any site prior to the issuance of a Critical Areas Permit or issuance of the underlying permit which incorporates an Approval under this title.~~

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6. Time Period for Final Decision. The provisions for issuing a notice of final decision on any application filed pursuant to this title is set forth in EMC 18.40.040, Coordination of development permit procedures.

E. Time Limitations.

1. Expiration of Approval.

a. Approvals granted under this title shall be valid for the same time period as the underlying permit (e.g., preliminary plat, site development, building permit). If there is a Critical Areas Permit, or the underlying permit does not contain a specified expiration date, then approvals and Critical Areas Permits granted under this title shall be valid for a period of three years from the date of issue, unless a longer or shorter period is specified in the final decision.

b. The Critical Areas Permit or approval in the underlying permit shall be considered null and void upon expiration, unless a time extension is requested and granted as set forth in subsection (E)(2) of this section.

2. Time Extensions.

a. The applicant or owner(s) may request in writing a one-time, one-year extension of the original Critical Areas Permit or approval in the underlying application, upon demonstrating to the Director that circumstances beyond the control of the Applicant dictated the need for the extension.

b. Knowledge of the expiration date and initiation of a request for a time extension is the responsibility of the applicant or owner(s).

c. A written request for a time extension shall be filed with the department at least 60 days prior to the expiration of the approval.

d. Upon filing of a written request for a time extension, a copy shall be sent to each party of record together with governmental departments or agencies that were involved in the original approval process. By letter, the department shall request written comments be delivered to the department within 30 days of the date of the letter.

e. Prior to the granting of a time extension, the department may require a new application(s), updated study(ies), and fee(s) if:

i. The original intent of the approval is altered or enlarged by the ~~extension renewal~~;

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ii. The circumstances relevant to the review and issuance of the original approval have changed substantially; or

iii. The applicant failed to abide by the terms of the original ~~approval~~.

f. If approved, the one-year time extension shall be calculated from the date of granting said approval.

F. Recording.

1. ~~Approvals~~.

a. Critical area ~~regulation~~ ~~Permits and~~ approvals ~~included in underlying permits~~ are to be recorded on the title of the project parcel(s) at the Pierce County auditor's office by City of Edgewood Staff prior to issuance and at the sole expense of Applicant. Also refer to EMC 14.10.080(F), Title and Land Division Notification, for additional recording requirements.

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b. Recording of a wetland approval for work completed within utility line easements on lands not owned by the jurisdiction conducting the regulated activity shall be required.

2. Right of Entry Agreement. ~~When required to investigate representations made by the permit applicant in the submitted materials and/or to ensure compliance with the terms of a Critical Areas Permit or Approval.~~ The city may require the applicant to record a right of entry agreement ~~against the property~~, which shall be consistent with a format approved by the department. The right of entry agreement shall:

a. Allow the department and agents of the department to access the site for purposes of inspection during the course of application review, construction, and post-construction monitoring.

b. Allow the department and agents of the department to enter a property to construct required improvements, mitigation measures, or monitoring that have been financially guaranteed.

c. Run with the land, and be binding on all parties having or acquiring any right, title, interest, or any part thereof of the site, including the grantor, heirs, successors, and assigns. (Ord. 02-200 § 2).

14.10.075 Relationship to Other Regulations

A. This title shall apply as an overlay and in addition to zoning and other regulations adopted by the City.

B. These critical areas regulations shall apply concurrently with review conducted under SEPA, as adopted under Chapter EMC 20.05.

C. Compliance with the provisions of this title does not constitute compliance with other federal, state, and local regulations and permit requirements that may be required (for example, Hydraulic Permit Act [HPA] permits, Section 106 of the National Historic Preservation Act, U.S. Army Corps of Engineers Section 404 permits, National Pollution Discharge Elimination System permits). The applicant is responsible for complying with these requirements, apart from the process established in this title.

D. Regulated activities that may impact critical areas and/or their buffers, but do not require any other City permits or approvals, may be reviewed as a critical areas permit, as outlined within EMC 14.10.070 ~~(c)~~.

14.10.080 Critical area protective measures.

A. General. All critical area tracts, conservation easements, land trust dedications, and other similarly preserved areas shall remain undeveloped in perpetuity, except as they may be allowed to be altered pursuant to this title.

B. Mitigation Sequence. Adverse impacts caused by new activities and developments shall be mitigated using the following action in order of priority:

1. Avoiding the impact altogether by not taking a certain action or parts of an action;

2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps, such as project redesign, relocation, or timing, to avoid or reduce impacts;
3. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
4. Reducing or eliminating the impact over time by preservation and maintenance operations;
5. Compensating for the impact by replacing, enhancing, or providing substitute resources or environments; and
6. Monitoring the impact and the compensation project and taking appropriate corrective measures.

C. Identification of Critical Areas and Required Buffers on Construction Plans. Critical areas and required buffers shall be clearly identified on all construction plans such as, but not limited to, site development plans, residential building plans, commercial building plans, forest harvest plans, etc.

D. Building Setbacks.

1. Unless otherwise provided in this title, buildings and other structures shall be set back a distance of 15 feet from the edge of all critical area buffers or, where no buffers are required, the edge of the critical area.
2. The following uses and activities may be allowed in the building setback area:
 - a. Landscaping;
 - b. Uncovered decks;
 - c. Building overhangs if such overhangs do not extend more than 18 inches into the setback area;
 - d. Impervious ground surfaces, such as driveways, parking lots, roads, walkways, and patios; provided, that such improvements conform to the water quality standards set forth in the city's adopted stormwater management manual and that construction equipment does not enter the buffer during the construction process; and
 - e. Clearing and grading. (Ord. 02-200 § 2).
 - f. All others are prohibited.

E. Financial Guarantees.

1. The city may require an applicant to submit one or more financial guarantees to the city, as set forth in each chapter of this title (and other titles of Edgewood's Municipal Code as required), to guarantee any performance, mitigation, maintenance, or monitoring required as a condition of permit approval. The approval for the project will not be granted until the financial guarantee is received by the department. Projects where the city or one of its departments is the applicant shall not be required to post a financial guarantee.
2. Financial guarantee instruments required under this title shall be:
 - a. In addition to any other site development guarantees required for project approval;
 - b. Submitted on financial guarantee forms approved by the city;
 - c. In the amount of 125 percent of the City Engineer's estimate of the cost of mitigation or monitoring to allow for inflation and administration should the city have to complete the mitigation or monitoring, unless the provisions set forth in subsection (B)(2)(D) of this section are applicable; and

d. Released by the city only when the applicant's appropriate technical professional has provided written confirmation that the performance, mitigation, or monitoring requirements have been met and department staff, or agent, inspected the site(s) for compliance.

3. Failure to complete any performance, mitigation, or monitoring may result in the forfeiture or release of the guarantee. Applicants who have previously defaulted will no longer be allowed to post a ~~"bond"~~ financial guarantee for improvements necessary for approval of a land use or critical area permit application. Applicants who have previously defaulted will be allowed to post cash guarantees for subsequent critical area mitigation work needed for approval of a land use application or critical areas permit, but the guarantee must be by cash guarantee only.

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F. Title and Land Division Notification.

1. General.

- a. Title and/or land division notice shall be required to be recorded with the Pierce County auditor on each site that contains a critical area, prior to approval of any regulated activity on a site.
- b. If more than one critical area subject to the provisions of this title exists on the site, then one notice which addresses all of the critical areas shall be sufficient.
- c. Title and land division notifications and notes shall be approved by the department and shall be consistent with EMC 14.10.140, Appendix A.

2. Title Notification.

- a. When the city determines that regulated activities not exempt from this title are proposed, the property owner shall file a notice with the Pierce County auditor. The notice shall provide a public record of the presence of a critical area and associated buffer, if applicable; the application of this title to the property; and that limitations on actions in or affecting such critical area and associated buffer, if applicable, may exist.
- b. The notice shall be notarized and shall be recorded by the City at the applicant's cost with the Pierce County auditor at the time of, but prior to approval of any regulated use or activity for the site.
- c. Notice on title is not required for utility line easements on lands not owned by the jurisdiction conducting the regulated activity (e.g., gas pipelines).

3. Land Division Notification and Notes. As referenced in EMC 14.10.140, Appendix A there shall be notes included on the face of any final plat, final binding site plan, short plat, or boundary line adjustment that contain critical areas or critical area buffers. The critical area boundaries and the boundary of any associated buffers shall be identified on the face of these documents prior to submission to the City for approval.

G. Conservation Easements. Prior to any final critical area approval, the part of the critical area and required buffer which is located on the site shall be protected with a conservation easement or other similar permanent deed restriction. The conservation easement shall indicate allowable and prohibited uses within the critical area and required buffer.

H. Tracts. Prior to final approval of any subdivisions, short subdivisions, large lot divisions, or binding site plans, the part of the critical area and required buffer which is located on the site, shall be placed in a separate tract or tracts, and the face of the plat shall include the requirement that the owners of all lots shall be required to preserve, protect and maintain the critical areas...

I. Homeowner's Covenants. A description of the critical area and required buffer shall be placed in any required homeowner's covenants to provide notice to the Homeowners of their responsibility to preserve, protect and maintain the critical areas in perpetuity. Such covenants shall contain a detailed description of the allowable uses within the critical area and, if applicable, associated buffer and long-term management and maintenance requirements of that critical area.

J. Markers, Fencing, and Signage.

1. Markers. Prior to final approval of any critical area application, the outer edge of the critical area boundaries or, if applicable, required buffer boundaries on the site shall be flagged by the qualified professional, as outlined in each chapter. These boundaries shall then be identified with permanent markers (rebar and cap) and flagged by a licensed surveyor, unless otherwise stated in this title. The permanent markers shall be clearly visible, durable, and permanently affixed to the ground.

2. Fencing.

a. Temporary Construction Fencing. Temporary fencing is required when vegetation is to be retained in an undisturbed condition within the critical area and required buffer. In such cases, the applicant will be required to construct silt fencing, construction fencing, or other city-approved method of temporary fencing at the edge of the critical area or, if applicable, the edge of the required buffer prior to beginning construction on the site.

b. Permanent Fencing. Where deemed necessary by the department to provide protection to the critical area, the applicant will be required to construct permanent, wildlife-passable fencing along the buffer boundary.

3. Signage.

a. The department shall require permanent signage to be installed at the edge of the critical area or, if applicable, the edge of the required buffer.

b. The sign shall indicate the type of critical area and if the area is to remain in a natural condition as permanent open space.

c. Exact sign locations, wording, size, and design specifications shall be established by the department. Required signage shall be clearly visible, durable, and permanently affixed to the ground.

d. Prior to final approval of any critical area application, the applicant shall submit an affidavit of posting to the department as proof that the required signs were posted on the site.

14.120.082 Critical areas reports

A. When required in accordance with this title, the applicant shall submit a critical areas report.

B. The critical areas report shall use scientifically valid methods and studies in the analysis of critical area data and field reconnaissance to evaluate the proposed development and all probable impacts to critical areas in accordance with the provisions of this title. The report shall reference the source(s) of science used in accordance with WAC 365-195-900 through WAC 365-195-~~925-925~~.

C. At a minimum the report shall contain the following:

1. The name and contact information of the applicant and a description of the proposal;
2. The site plan for the proposed development, including a map drawn to scale depicting critical areas, buffers, the proposed development, and any areas to be cleared or altered;
3. The date of the report and names and qualifications of the persons preparing the report;
4. Documentation of any fieldwork performed on the site;
5. Identification and characterization of all critical areas and buffers on and adjacent to the proposed development;
6. A statement specifying the accuracy of the report, and all assumptions made and relied upon;

7. A discussion of the performance standards applicable to the critical area and proposed development;
8. A mitigation plan in accordance with EMC 14.10.083 if mitigation is required; and
9. Any additional report information required for the critical area as specified in the following chapters.

14.120.083 Mitigation plans

When mitigation is required, the applicant shall submit a mitigation plan. The mitigation plan shall include all of the following:

- A. Mitigation sequencing. A description of reasonable efforts made to apply mitigation sequencing pursuant to EMC 14.10.080(B) to avoid, minimize, and mitigate impacts to critical areas and buffers.
- B. Mitigation details.
 1. A description of the anticipated impacts to the critical area and buffer, including impacts to critical area functions and values;
 2. The mitigating actions proposed, including: type of mitigation proposed (e.g., on-site or off-site); site selection criteria; identification of compensation goals; and identification of critical area functions.
 3. The environmental goals and objectives of the mitigation, together with specific measurable criteria and performance standards for evaluating whether or not the goals and objectives of the mitigation project have been successfully attained;
 4. A review of the best available science supporting the proposed mitigation; and
 5. An analysis of the likelihood of success of the mitigation project.
- C. Construction details. The mitigation plan shall include written specifications, descriptions, and drawings of the mitigation proposed, including:
 1. Construction sequence, timing, and duration;
 2. Grading and excavation details;
 3. Erosion and sediment control features; and
 4. Planting plan specifying plant species, quantities, locations, size, spacing, density, and measures to protect and maintain plants until established. All plant species must be native to the region.
- D. Monitoring details.
 1. A program for monitoring construction and assessing the outcome of the mitigation project, including the schedule for site monitoring (for example, monitoring shall occur in year 1, 3, and 5 after site construction), and how the monitoring data will be evaluated to determine if the performance standards are being met. Monitoring reports shall be submitted to document milestones, successes, problems, and contingency actions of the compensation project. The mitigation project shall be monitored for a period necessary to establish that performance standards have been met, but not for a period less than five (5) years. Mitigation monitoring shall be the responsibility of the applicant.
 2. A contingency plan with courses of action and corrective measures to be taken if monitoring or evaluation indicates project performance standards are not being met.
- E. Mitigation Cost Estimate. A Mitigation Cost Estimate for the entire compensatory mitigation project, per the requirements of EMC 14.10.080(E).

- F. Other requirements. The mitigation plan shall address any additional mitigation requirements relevant to the specific critical area as specified in the following chapters.

14.10.085 Variances to critical areas.

A. General. Variances are reviewed pursuant to ~~permit type, outlined with Chapter 18.40, EMC, EMC-18.50.080, Variances.~~ Conditions may be attached to a critical area(s) variance, which will serve to meet the goals, objectives, and policies of this title.

B. Complete Application. A complete application for a Critical Areas Variance shall consist of:

1. A completed application form, signed by the property owner or property owner's representative. If the property owner's representative signs the form, it must be accompanied by the signed written authorization of the property owner of record.
2. Address, parcel number, etc.
3. Description of the proposed development activity;
4. Identification of the specific requirements of this title from which the applicant desire to vary, the extent to which such variance is required (add more?)
5. Application fee, as established by City resolution.

B. Variance Criteria. A variance may be granted from the requirements of this ~~chapter title~~ only if the decision maker makes written findings that the applicant has demonstrated that the requested action conforms to all of the criteria set forth as follows:

1. Special conditions and circumstances exist that are peculiar to the land, the lot, or something inherent in the land, and that are not applicable to other lands in the same district; and
2. The special conditions and circumstances do not result from the actions of the applicant; and
3. A literal interpretation of the provisions of this title would deprive the applicant of all reasonable economic uses and privileges permitted to other properties in the vicinity and zone of the subject property under the terms of this title, and the variance requested is the minimum necessary to provide the applicant with such rights; and
4. Granting the variance requested will not confer on the applicant any special privilege that is denied by this title to other lands, structures, or buildings under similar circumstances; and
5. The granting of the variance is consistent with the general purpose and intent of this title, and will not further degrade the functions or values of the associated critical areas or otherwise be materially detrimental to the public welfare or injurious to the property or improvements in the vicinity of the subject property; and
6. The decision to grant the variance ~~incorporates~~ the best available science and gives special consideration to conservation or protection measures necessary to preserve or enhance anadromous fish habitat; and
7. The granting of the variance is consistent with the general purpose and intent of the Edgewood Comprehensive Plan and adopted development regulations.

C. Additional Criteria for Flood Hazard Area Variances. In addition to the variance criteria specified above in subsection (B) of this section, in order for the decisionmaker to approve a flood hazard variance, the decisionmaker must make written findings that the applicant has demonstrated, that the proposal satisfies all of the following:

1. Generally, the only condition under which a variance from the elevation standard may be issued is for new construction and substantial improvements to be erected on a small or irregularly shaped lot contiguous to and surrounded by lots with existing structures constructed below the base flood level. As the lot size increases the technical justification required for issuing the variance increases.

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2. Variances shall not be issued within a designated floodway if any increase in flood levels during the base flood discharge would result.
3. Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
4. Variances shall only be issued upon:
 - a. A showing of good and sufficient cause;
 - b. A determination that failure to grant the variance would result in exceptional hardship to the applicant and that the hardship was not created by the applicant;
 - c. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.
5. Variances as interpreted in the National Flood Insurance Program are based on the general zoning law principle that they pertain to a physical piece of property; they are not personal in nature and do not pertain to the structure, its inhabitants, economic or financial circumstances. They primarily address small lots in densely populated residential neighborhoods. As such, variances from flood elevations should be quite rare.
6. Variances may be issued for nonresidential buildings in very limited circumstances to allow a lesser degree of flood proofing than watertight or dry-flood proofing, where it can be determined that such action will have low damage potential, complies with all other variance criteria (except 4.4-1), and otherwise complies with Sections 5.1-1, 5.1-3, and 5.1-4 of the General Standards.
7. Any applicant to whom a variance is granted shall be given written notice that the permitted structure will be built with its lowest floor below the base flood elevation and that the cost of flood insurance will be commensurate with the increased risk.

D. Should a variance be denied, the applicant may submit an application for a ~~-a~~ reasonable use exception pursuant to EMC 14.20.050. (Ord. 17-492 § 2 (Exh. A); Ord. 02-200 § 2).

14.10.090 Reconsideration and appeal procedures.

Procedures for appeal of a final decision on a critical areas permit, a decision relating to critical areas in the underlying permit, a critical areas variance or a critical areas flood hazard variance are set forth in ~~chapter-EMC 18.40-~~

14.10.100 Fees.

Fees for applications and/or review of reports, studies, or plans filed pursuant to this title are set forth in the adopted fee schedule and as identified below:

A. Fee Establishment. The city, by resolution, shall establish fees for filing of critical area review processing and other services provided by the city as required by this title. These fees shall be based on the anticipated sum of direct costs incurred by the city for any individual development or action and may be established as a sliding scale that will recover all of the city costs. Basis for these fees shall include, but not be limited to, the cost of engineering and planning review time, cost of inspection time, costs for administration, and any other special costs attributable to the critical area review process.

B. Applicant Responsibilities. Unless otherwise indicated in this title, the applicant shall be responsible for the initiation, preparation, submission, and expense of all required reports, assessment(s), studies, plans, reconnaissance(s), peer review(s) by qualified consultants, and other work prepared in support of or necessary to review the application.

C. Fee Schedule. The director is charged with the responsibility of collecting appropriate fees charged to applicants for any permits or discretionary approval processes provided for in this title. The amount of the fees charged shall be

as established by resolution ~~or ordinance~~ of the city council filed in the office of the city clerk and may be, from time to time, changed without amendment to this title.

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D. Payment. Fees established in accordance with this title shall be paid upon submission of a signed application or petition for appeal, or as otherwise provided by any fee ~~ordinance or resolution~~ adopted by the city council. ~~Where such an application will require substantial review time or expenditures, the mayor may, at his/her sole discretion, direct that the department initiating the permit request to reimburse the community development department for some or all of costs expended for the application review.~~

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E. Investigation Fee. ~~To investigate violations of this title, all city fees associated with investigation of violations of this title may be assessed at the adopted billable staff hour rate in addition to any required consultant costs, legal costs, and other expenses necessary to complete the investigation of the violation. The payment of such investigation fees shall not exempt any person from compliance with all other provisions of this title, nor from penalties prescribed by law.~~

14.10.110 Compliance.

A. The regulations for compliance with the provisions of this title are set forth in EMC 18.30.040, Scope and compliance.

B. When a critical area or its required buffer has been altered in violation of this title, the department shall require the property owner to bring the site into compliance. The property owner shall be required to submit the appropriate critical area application and commence a departmental review, as applicable for each chapter of this title. In addition to any required site investigation, delineations, assessments, reports, etc., the property owner shall be required to submit a restoration plan that identifies the proposed mitigation to bring the subject property into compliance with the requirements of this title. (Ord. 02-200 § 2).

14.10.120 Warning and disclaimer of liability.

The degree of protection required through application of this title is deemed to be reasonable for regulatory purposes and is based on best available science; however, natural events that may exceed the geographic boundaries regulated under this title can and will occur (e.g., flood heights that are higher than anticipated). This title does not mean to imply that land outside designated hazard areas or uses permitted within such areas will be free from damages.

The express purpose of this title is to provide for the health, safety and welfare of the general public, and not to protect individuals or create or otherwise establish or designate any particular class or group of persons who will or should be especially protected or benefitted by the terms of this title. The obligation of complying with the requirements of this title and the liability for failing to do so is hereby placed upon the property owner and/or persons responsible for the condition of the property, buildings or premises.

Nothing in this title is intended to be nor shall be construed to create or form the basis for any liability on the part of the City, its officers, officials, employees or agents, for any injury or damage resulting from the failure of the owner of property or land to comply with the provisions of this title or by reason or in consequence of any inspection, notice, order, certificate, permission or approval, authorized or issued or done in connection with the implementation or enforcement of this title, or by reason of any action or inaction on the part of the City, related in any manner to the enforcement of the title by its officers, officials, employees or agents.

14.10.140 Appendix.

A. Title and Plat Notification Forms.

APPENDIX A

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TITLE AND PLAT NOTIFICATION FORMS

A. Notice for Title Notification.

1. (Example: Appropriate Critical Area from EMC 14.10.030)

Tax Parcel Number:

Address:

Legal Description:

Present Owner:

NOTICE: This property contains (e.g., wetlands or wetland buffers) as defined by EMC 14.10.030. The site was the subject of a development proposal for _____ application number filed on _____ (date). Restrictions on use or alteration of the site may exist due to natural conditions of the property and resulting regulations. Review of such application has provided information on the location of the (e.g., wetland or wetland buffers) and any restriction on use.

Date Signature of owner

Notary acknowledgment and notary seal

B. Additional Title Notification Statements.

1. Title notification for liquefaction and dynamic settlement hazard areas shall include a statement of the performance criteria (i.e., protection of life safety only, provision for minimal structural damage so that post-earthquake functionality is substantially unchanged, no structural damage for the design earthquake).
2. Title notification for fault rupture hazard areas shall include a statement that a fault rupture hazard area or associated buffer exists on the site. The title notification shall include a site plan of the subject property with the fault rupture hazard area and associated buffer identified.
3. Properties that contain flood hazard areas pursuant to Chapter 14.70 EMC shall include the following statement:

Flood Elevation Certificates are kept on file by the department.

C. Notice for Plat Notification/Plat Notes.

1. General. The following notice shall be placed on the face of the final plat, short plat, large lot, or binding site plan documents when said subdivision contains critical areas or critical area buffers:

Notice: This site lies within a (e.g., landslide hazard area) as defined in EMC Title 14. Restrictions on use or alteration of the site may exist due to natural conditions of the site and resulting regulation.

2. Native Vegetation Preservation Areas. The following notice shall be placed on the face of the final plat, short plat, large lot, or binding site plan documents when said subdivision contains critical areas or critical area buffers and when said critical areas or critical area buffers have been identified as native/natural vegetation preservation areas.

Notice: The Critical Areas appearing on this (final site plan/preliminary plat/final plat/short plat/large lot/engineering drawing) contain areas of native vegetation intended to buffer the Critical Area from the adverse effects of development. These Critical Areas shall remain and be maintained in a natural, undeveloped, open space state. There shall be no clearing, grading, filling, or construction within the Critical Areas, except as shown on plans or documents approved by the City of Edgewood and contained in the official files for this development. Each Critical Area shall remain undisturbed except for periodic watering and hand weeding of plants designated as noxious by the State of Washington.

3. Plat Notes for Flood Hazard Areas. The following notes shall be placed on the face of any of final plat, short plat, large lot, or binding site plan documents which lie within a flood hazard area.

- a. Grading, clearing, and/or filling within the limits of the 100-year floodplain is prohibited except for watercourse related construction, repair, and/or maintenance work that is done by the city for management operations.
- b. If a higher frequency event occurs or if existing conditions upon which the flood hazard area boundaries were based were to change or occur differently than depicted, then the level of protection afforded by the existing levee, if applicable, and flood hazard area standards may not be adequate to prevent the subject site from flooding.
- c. All purchasers and developers (and/or their agents) of property within the subject development area and/or parcel shall take notice of the above conditions and hereby agree to defend, indemnify, and hold harmless Edgewood from any and all claims, losses, costs, liabilities, or damages of any nature imposed upon or asserted against Edgewood arising out of or caused by the city's issuance of approval or by issuance of any other permits arising out of this approval.
- d. All occupants and/or owners of property in the subject area assume the risk of flooding which may occur and waive any claims against Edgewood arising out of damage or injury to person or property resulting therefrom. (Ord. 17-492 § 2 (Exh. A); Ord. 16-461 § 3; Ord. 02-200 § 2).

Chapter 14.15

DEFINITIONS

This title shall rely on the definitions contained in Chapter 18.20 EMC, Definitions. The city also adopts by reference the definitions stated in WAC 197-11-700 through 197-11-799 as now or hereafter amended. Additional definitions that apply to this title are:

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“Abutting” means bordering upon, to touch upon, in physical contact with. Sites are considered abutting even though the area of contact may be only a point.

“Activity” means any use conducted on a site.

“Addition” means an alteration to an existing structure that increases the floor area. There are two types of additions: additions affixed to the side of an existing structure and an upper story addition.

“Agricultural activities” means the production of crops and/or raising or keeping livestock, including operation and maintenance of farm and stock ponds, drainage ditches, irrigation systems, and normal operation, maintenance, and repair of existing serviceable agricultural structures, facilities, or improved areas, and the practice of aquaculture. Activities which bring an area into agricultural use are not part of an ongoing activity. An operation ceases to be ongoing when the area in which it was conducted is proposed for conversion to a non-agricultural use or has lain idle for a period of longer than five (5) years, unless the idle land is registered in a federal or state soils conversation program. Forest practices regulated under Chapter 76.09 RCW and WAC Title 222 are not included in this definition.

“Agricultural land” means land primarily devoted to the commercial production of horticultural, viticultural, floricultural, dairy, apiary, vegetable, or animal products or of berries, grain, hay, straw, turf, seed, Christmas trees not subject to the excise tax imposed by RCW 84.33.100 through 84.33.140, finfish in upland hatcheries, or livestock, and that has long-term commercial significance for agricultural production.

“Animal containment area” means a site where two or more animal units of large animals per acre or 0.75 of an animal unit of small animals per acre are kept, and where a high volume of waste material is deposited in quantities capable of impacting groundwater resources.

“Animal unit” means the equivalent of 1,000 pounds of animal.

“Appeal” means a request for a review of the interpretation of any provision of this chapter, a decision on a Critical Areas Permit or an underlying permit per EMC 14.10.090.

“Applicant” means any person or entity, including an agency, applying for a license permit or approval from an the City under this Title agency.

“Application” means a request for a permit or approval under this Title license.

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“Aquifer” means a saturated geologic formation, which will yield a sufficient quantity of water to serve as a private or public water supply.

“Area of shallow flooding” means areas designated as AO or AH zones on the FIRM(s). AO zones are characterized as sheet flows, having base flood depths that range from one to three feet above the natural ground, where a clearly defined channel does not exist, the path of flooding is unpredictable and indeterminate, and velocity flow may be evident. AH zones indicate similar depth ponding, shown with standard base flood elevations on the FIRM(s).

“Area of special flood hazard” means land in the floodplain within a community subject to a one percent or greater chance of flooding in any given year. Designation on FIRM(s) always includes the letter A or V.

“Base flood” means the flood having a one percent chance of being equaled or exceeded in any given year, also referred to as the “100-year flood,” and is designated on FIRM(s) by the letter A or V.

“Basement” means any area of the building having its floor sub-grade (below ground level) on all sides, for the purposes of this title.

“Best available science” means scientific information applicable to the critical area prepared by local, state, or federal natural resource agencies, a qualified scientific professional, or team of qualified scientific professionals that is consistent with criteria established in WAC 365-195-900 through WAC 365-195-925.

“Best management practices” means conservation practices or systems of practices and management measures that:

- A. Control soil loss and reduce water quality degradation caused by high concentrations of nutrients, animal waste, toxics and sediment;
- B. Minimize adverse impacts to surface water and ground water flow and circulation patterns and to the chemical, physical, and biological characteristics of wetlands;
- C. Protect trees and vegetation designated to be retained during and following site construction and use native plant species appropriate to the site for re-vegetation of disturbed areas; and
- D. Provide standards for proper use of chemical herbicides within critical areas.

“Breakaway wall” means a wall that is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces, without causing damage to the elevated portion of the building or supporting foundation system.

“Buffer” means an area contiguous with a critical area that is required for the integrity, maintenance, function, and structural stability of the critical area.

“Building footprint” means the horizontal area measured within the outside of the exterior walls of the ground floor of all principal and accessory buildings on a lot.

“City” means the city of Edgewood.

“Classification” means defining value and hazard categories to which critical areas and land resource lands will be assigned.

“Clearing” means the removal of timber, brush, grass, ground cover, or other vegetative matter from a site, which exposes the earth’s surface on the site.

“Colluvium” means loose materials deposited by gravity on the face of or at the foot of a slope (e.g., talus, soil creep, etc.).

“Compensatory mitigation” means replacing project-induced losses or impacts to a critical area.

“Conservation easement” means a recorded deed restriction or covenant that runs in perpetuity on a parcel of land restricting the use of the property by preventing future real estate development such as residential, industrial, or commercial use. Conservation easements may allow for continued current uses (e.g., residential, recreational, agriculture, forestry, or ranching); however, conservation easements most often restrict both the current use as well as future uses of the land to some important conservation quality such as habitat preservation, open space, or scenic views. A land trust or governmental entity that manages properties for long-term goals typically holds conservation easements.

“Contaminant” means any chemical, physical, biological, or radiological substance that does not occur naturally or occurs at concentrations and duration as to be injurious to human health or welfare or shown to be ecologically damaging.

“Council” means the Edgewood city council.

“County” means Pierce County.

“Crawl space” means the shallow space beneath the bottom floor of a house with no basement; used for access and inspection of framing, electrical, plumbing, insulation, vapor barriers, or duct work. For purposes of the National Flood Insurance Program Elevation Certificate, a crawl space that has subgrade around all sides shall be considered a basement.

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

“Critical areas” means the following areas and ecosystems: (a) Wetlands; (b) areas with a critical recharging effect on aquifers used for potable water; (c) fish and wildlife habitat conservation areas; (d) frequently flooded areas; and (e) geologically hazardous areas.

“Critical facilities” means those facilities occupied by populations or which handle dangerous substances including but not limited to hospitals, medical facilities, nursing homes; structures housing, supporting, or containing toxic or explosive substances; covered public assembly structures; school buildings through secondary, including daycare centers; buildings for colleges or adult education; police, fire, and emergency response installations; jails and detention facilities; and all structures with occupancy of greater than 5,000 people. These facilities are such that even a slight chance of flooding might be too great. Essential public facilities (as defined under EMC 18.20.080 and 18.100.050) are considered critical facilities, for floodplain management purposes.

“Debris flow” means the rapid downslope movement of a viscous mass of water-saturated sediments.

“Degraded” means to have suffered a decrease in naturally occurring functions and values due to activities undertaken or managed by persons on or off a site.

“Delineation” means a wetland study conducted in accordance with the approved federal wetland delineation manual and applicable regional supplements.

“Department” means the City of Edgewood Department of Community Development.

“Depressional pothole” means a relatively sunken or low-lying area of the earth’s surface, especially one having no natural outlet for surface drainage.

“Development” means any human-induced change to improved or unimproved real property, including but not limited to: the construction of buildings or other structures, placement of a manufactured home/mobile home, mining, dredging, clearing, filling, grading, paving, excavation, drilling operations, storage of equipment or materials located within an area of special flood hazard, or activities otherwise governed by EMC Title 16, Subdivisions.

“Development activity” means any construction, development, earth movement, clearing, or other site disturbance of the land, except as listed under exemptions.

“Director” means the director of the city of Edgewood Department of Community Development or his/her designee.

“DRASTIC” is an acronym for a computer model developed by the National Water Well Association and Environmental Protection Agency used to measure aquifer susceptibility.

“Dwelling unit” means one or more rooms designed for or occupied by one family for living or sleeping purposes and containing kitchen facilities for use solely by one family.

“Earth/earth material” means naturally occurring rock, soil, stone, sediment, or combination thereof.

“Earthflow” means a slow downslope movement of viscous, saturated sediments.

“Elevated building” means, for insurance purposes, a non-basement building that has its lowest elevated floor raised above ground level by foundation walls, shear walls, posts, piers, pilings, or columns.

“Elevation certificate” means the official form (FEMA Form 81-31) used to track development, provide elevation information necessary to ensure compliance with community floodplain management ordinances, and determine the proper insurance premium rate with Section B completed by community officials.

“Encroachment” means any development or regulated activity conducted inside the boundaries of a designated critical area and/or its associated buffer.

“Engineer” as defined by Chapter 18.43 RCW.

“Engineering geologist” means a geologist who, by reason of his or her knowledge of engineering geology, acquired by education and practical experience, is qualified to engage in the practice of engineering geology, has met the qualifications in engineering geology established under Chapter 18.220 RCW, and has been issued a license in engineering geology by the Washington State Geologist Licensing Board.

“Engineering geology” means a specialty of geology affecting the planning, design, operation, and maintenance of engineering works and other human activities where geological factors and conditions impact the public welfare or the safeguarding of life, health, property, and the environment.

“Enhancement” means actions performed within an existing degraded critical area and/or buffer to intentionally increase or augment one or more ecological functions or values of the existing area. Enhancement actions include, but are not limited to, increasing plant diversity and cover; increasing wildlife habitat and structural complexity (snags, woody debris); installing environmentally compatible erosion controls; removing non-native plant or animal species; or removing human-made structures or fill that are degrading ecological functions or values.

“Erosion” means the wearing away of the earth’s surface as a result of the movement of wind, water, or ice.

“Erosion hazard areas” means those areas that because of natural characteristics, including vegetative cover, soil texture, slope, gradient, and rainfall patterns, or human-induced changes to such characteristics, are vulnerable to erosion.

“Excavation” means the mechanical removal of earth material.

“Existing manufactured home park or subdivision” means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed before the effective date of the adopted floodplain management regulations.

“Expansion to an existing manufactured home park or subdivision” means the preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).

“Facility” means all structures, contiguous land, appurtenances, and other improvements on the land used for recycling, reusing, reclaiming, transferring, storing, treating, disposing, or otherwise handling a hazardous substance. Use of the term “facility” includes underground and aboveground tanks and operations, which handle, use, dispose of, or store hazardous substances.

“Fill/fill material” means a deposit of earth material placed by human or mechanical means.

“Filling” means the act of placing fill/fill material on any surface, including temporary stockpiling of fill material.

“Financial guarantee” a surety bond or other security, such as a cash escrow, cash set aside, assignment of funds, letter of credit, that the City may allow a developer to utilize in lieu of completion of the actual construction of required improvements prior to the City’s approval and acceptance of the improvements. The City establishes the amount and conditions which will ensure completion within a specific time period.

“Finished floor” means the top of the next higher floor above the lowest floor. For purposes of the National Flood Insurance Program Elevation Certificate, the finished floor referenced in this regulation shall equal the top of the next higher floor.

“Fish and wildlife habitat conservation areas” means areas necessary for maintaining species in suitable habitats within their natural geographic distribution so that isolated subpopulations are not created as designated by WAC 365-190-080(5). “Fish and wildlife habitat conservation areas” does not include such artificial features or constructs as irrigation delivery systems, irrigation infrastructure, irrigation canals, or drainage ditches that lie within the boundaries of and are maintained by a port district or an irrigation district or company.

“Fisheries biologist” means a professional with a degree in fisheries or certification by the American Fisheries Society, or with five years’ professional experience as a fisheries biologist.

“Flood” or “flooding” means a general and temporary condition of partial or complete inundation of normally dry land areas from:

1. The overflow of inland or tidal waters; and/or
2. The unusual and rapid accumulation of runoff of surface waters from any source.

“Flood hazard areas” means areas of flooding identified by verifiable flooded areas using:

1. Aerial photographs of the city, especially those taken in wintertime 1996 and 1997;
2. Relevant and verifiable information from the city’s capacity analysis technical review Adhoc committee (CATRAC) draft report, 2000;
3. Relevant and verifiable government and citizen photographs, notes, observations, etc. regarding historic ponding/flooding levels
4. Relevant and verifiable information available through Pierce County;
5. Relevant and verifiable information available through the Federal Emergency Management Agency (FEMA); or
6. Areas of land located in floodplains, which are subject to a one percent or greater chance of flooding in any given year, including, but not limited to, streams, rivers, lakes, ponds, wetlands, depressional potholes and the like.

“Flood Insurance Rate Map (FIRM)” means the official map on which the Federal Insurance Administration (FIA) has delineated both the areas of special flood hazard and the risk premium zones applicable to the community.

“Flood Insurance Study (FIS)” means the official report provided by the Federal Insurance Administration (FIA) that includes flood profiles, FIRM(s), and the water surface elevation of the base flood.

“Flood fringe” means the area subject to inundation by the base flood, but outside the limits of the floodway, and which may provide needed temporary storage capacity for floodwaters.

“Floodplain” means the total area subject to inundation by the base flood, including the flood fringe and the floodway areas.

“Floodway” means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to convey and discharge the base flood without cumulatively increasing the water surface elevation by more than one foot, and those areas designated as deep and/or fast-flowing water.

“Fluvial processes” means the physical interaction of flowing water and the natural channels of rivers and streams.

“Foundation footing setback” means a typical geotechnical recommendation intended to assure that a proposed structure is protected in the event of a slope failure or sloughage. A foundation footing setback is measured horizontally from the face of the foundation footing to the face of the slope. A foundation footing setback for this purpose should not be confused with a building or construction setback from a landslide hazard area buffer. A foundation footing setback is also not a buffer.

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

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

“Geologist” means engineering geologist, or hydrogeologist, registered in the state of Washington.

“Geotechnical professional” means a person with experience and training in analyzing, evaluating, and mitigating landslide, erosion, and/or seismic hazards. A geotechnical professional shall be licensed in the state of Washington as a geologist or professional engineer, and must have five or more years’ experience specializing in landslide, erosion, or seismic hazards, as applicable.

“Geotechnical report” means a report prepared by a professional engineer licensed by the state of Washington with expertise in geotechnical engineering, evaluating the site conditions and mitigating measures necessary to reduce the risks associated with development in geologically hazardous areas.

“Grading” means any excavating, filling, clearing, or creating of impervious surfaces or combination thereof.

“Groundwater” means all water found beneath the ground surface, including slowly moving subsurface water present in aquifers and recharge areas.

“Habitat management plan” means a report prepared by a professional wildlife biologist or fisheries biologist, which discusses and evaluates the measures necessary to maintain fish and wildlife habitat conservation areas on a proposed development site.

“Habitat of local importance” means an area, range, or habitat within which a species has a primary association and which, if altered, may reduce the likelihood that the species will maintain and reproduce over the long term. Examples include areas of high relative density or species richness, breeding habitat, winter range, and movement corridors. These areas may also include habitats that are of limited availability or high vulnerability to alteration.

“Hard armoring” means the use of large rock and/or human-made materials to protect property from shoreline erosion. Such techniques include cement/concrete bulkheads, steel structures, rock wall revetments, and rock gabion structures. Hard armoring typically does not utilize or integrate any of soft armoring or soil bioengineering techniques.

“Hazardous substance(s)” means any liquid, solid, gas, or sludge, including any materials, substance, product, commodity, or waste, regardless of quantity, that exhibits any of the characteristics or criteria of hazardous waste; and including waste oil and petroleum products.

“Hazardous substance processing or handling” means the use, storage, manufacture, or other land use activity involving hazardous substances, but does not include individually packaged household consumer products or quantities of hazardous substances of less than five gallons in volume per container. Hazardous substances shall not be disposed on-site unless in compliance with Dangerous Waste Regulations, Chapter 173-303 WAC, and any pertinent local ordinances such as sewer discharge standards.

“Hazardous waste” means and includes all dangerous waste and extremely hazardous waste as designated pursuant to Chapter 70.105 RCW and Chapter 173-303 WAC.

1. "Dangerous waste" means any discarded, useless, unwanted, or abandoned substances including but not limited to certain pesticides or any residues or containers of such substances which are disposed of in such quantity or concentrations as to pose a substantial present or potential hazard to human health, wildlife, or the environment because such wastes or constituents or combinations of such wastes:

- a. Have short-lived, toxic properties that may cause death, injury, or illness, or have mutagenic, teratogenic, or carcinogenic properties; or
- b. Are corrosive, explosive, flammable, or may generate pressure through decomposition or other means.

2. "Extremely hazardous waste" means any waste which:

- a. Will persist in a hazardous form for several years or more at a disposal site and which in its persistent form presents a significant environmental hazard and may be concentrated by living organisms through a food chain or may affect the genetic make-up of humans or wildlife; and
- b. Is disposed of at a disposal site in such quantities as would present an extreme hazard to humans or the environment.

"Hazardous waste treatment and storage facility" means a facility that treats and stores hazardous waste and is authorized pursuant to Chapter 70.105 RCW and Chapter 173-303 WAC. It includes all contiguous land and structures used for recycling, reusing, reclaiming, transferring, storing, treating, or disposing of hazardous waste. Treatment includes using physical, chemical, or biological processing of hazardous wastes to make such waste non-dangerous or less dangerous and safer for transport, amenable for energy or material resource recovery. Storage includes the holding of waste for a temporary period, but not the accumulation of waste on the site of generation as long as the storage complies with applicable requirements of Chapter 173-303 WAC.

"Holocene Epoch" means that part of the geologic record that post-dates the youngest deposits associated with the late Pleistocene Age Fraser Glaciation and is typically considered to be the past 10,000 years.

"Hydrogeologic assessment" means a report detailing the subsurface conditions, the design of a proposed land use action, and the facilities operation which indicates the susceptibility and potential for contamination of groundwater supplies.

"Impervious surface" means a hard surface, which prevents or retards the entry of water into the soil mantle as under natural conditions prior to development, and/or a hard surface area, which causes water to run off the surface in greater quantities or at an increased rate of flow than the flow present under natural conditions prior to development. Common impervious surfaces include, but are not limited to, roof tops, walkways, patios, driveways, parking lots or storage areas, concrete or asphalt paving, gravel roads, gravel parking lots, packed earthen materials, and oiled, macadam or other surfaces which similarly impede the natural infiltration of stormwater. Open, uncovered retention/detention facilities shall not be considered as impervious surfaces.

"Increased cost of compliance (ICC)" means a flood insurance claim payment up to \$30,000 directly to a property owner for the cost to comply with floodplain management regulations after a direct physical loss caused by a flood. Eligibility for an ICC claim can be through a single instance of "substantial damage" or as a result of a "cumulative substantial damage." (More information can be found in FEMA ICC Manual 301.)

"Lahar" means a mudflow or debris flow mobilized by water, which originates on the slopes of a volcano.

"Lakes" means impoundments of open water 20 acres or larger.

"Landfill" means a place to dispose of refuse and other waste material by burying it and covering it over with soil.

"Landslide" means the abrupt downslope movement of soil, rocks, or other surface matter on a site. Landslides may include but are not limited to slumps, debris flows, mudflows, earthflows, rockfalls, and snow avalanches.

"Landslide hazard areas" means areas which are potentially subject to risk of mass movement due to a combination of geologic, topographic, and hydrologic factors.

“Large animal” means an animal with an average weight of 100 pounds or more.

“License” means any form of written permission given to any person, organization, or agency to engage in any activity, as required by law or agency rule. A license includes all or part of a city permit, certificate, approval, registration, charter, or plat approvals or rezones to facilitate a particular proposal. The term does not include a license required solely for revenue purposes.

“LiDAR” means Light Detection and Ranging imaging.

“Liquefaction” means a process by which a water-saturated granular (sandy) soil layer loses strength because of ground shaking caused by an earthquake.

“Long-term commercial significance” means the growing capacity, productivity, and soil composition of land, which makes it suitable for long-term commercial production, in consideration with the land’s proximity to population areas, and the possibility of more intense uses of land.

“Lowest floor” means the lowest floor of the lowest enclosed area (including basement and crawl space). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access, or storage in an area other than a basement area, is not considered a building’s lowest floor; provided, that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of this title.

“Maintenance” means those usual acts to prevent a decline, lapse, or cessation from a lawfully established condition without any expansion of or significant change from that originally established condition. For the purposes of this document, activities within landscaped areas within areas subject to native vegetation retention requirements may be considered maintenance only if they maintain or enhance the canopy and understory cover.

“Manufactured home/mobile home” means a structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. For floodplain management purposes, the term “manufactured home/mobile home” also includes park trailers, travel trailers, and other similar recreational vehicles placed on a site for greater than 180 consecutive days. For insurance purposes, the term “manufactured home/mobile home” does not include park trailers, travel trailers, recreational vehicles, or other similar vehicles.

“Manufactured home park or subdivision” means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

“Mineral resource lands” means lands primarily devoted to the extraction of minerals or which have known or potential long-term commercial significance for the extraction of minerals.

“Minerals” include gravel, sand, or other resources that are extracted from the ground, and valuable metallic substances.

“Mitigation” means:

1. Avoiding the impact altogether by not taking a certain action or parts of an action;
2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps to avoid or reduce impacts;
3. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
4. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action;
5. Compensating for the impact by replacing, enhancing, or providing substitute resources or environments; and
6. Monitoring the impact and taking appropriate corrective measures;

–“Mudflow” means a debris flow containing an abundance of fine particles.

“Native vegetation” or “native plants” means a mix of plant species comprising herbs, grasses, grass-like plants, shrubs and trees indigenous to the Puget Sound region that reasonably could be expected to naturally occur on the site.

“Natural resource lands” means agricultural and mineral resource lands, which have long-term commercial significance.

“New construction” means structures for which the “start of construction” commenced on or after the following:

1. For the purposes of determining flood insurance rates, the effective date of an initial FIRM (i.e., August 19, 1987, or August 4, 1988, specifically for Panel 350 only), and includes any subsequent improvements to such structures.
2. For floodplain management purposes, the effective date of this floodplain management ordinance and includes any subsequent improvements to such structures.
3. For all other cases, the effective date of the applicable critical areas ordinance.

“New manufactured home park or subdivision” means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after the effective date of the adopted floodplain management regulations.

“Ordinance” means the ordinance, resolution, or other procedure used by the city to adopt regulatory requirements.

“Ordinary high water mark (OHWM)” means the mark on all lakes, streams and tidal waters that will be found by examining the beds and banks and ascertaining where the presence and action of waters are so common and usual, and so long continued in all ordinary years, as to mark upon the soil a character distinct from that of the abutting upland and vegetation, as that condition exists on the effective date of the ordinance codified in this title, or as it may naturally change thereafter. In any area where the ordinary high water mark cannot be found, the ordinary high water mark shall be the line of mean higher high tide in areas adjoining saltwater, and the line of mean high water in areas adjoining freshwater.

“Plat” means:

1. “Short subdivision” or “short plat” means the division or redivision of land into six or fewer lots, tracts, parcels, sites, or divisions for the purpose of sale, lease, or transfer of ownership.
2. “Subdivision” or “formal subdivision” means the division or redivision of land into seven or more lots, tracts, parcels, sites, or division for the purpose of sale, lease, or transfer of ownership. For floodplain management regulation purposes, this includes land over five acres in area situated within a flood hazard area.

“Ponds” means naturally occurring impoundments of open water less than 20 acres in size and larger than 2,500 square feet, which maintain standing water throughout the year. Also see “depressional pothole.”

“Professional engineer” means an engineer currently licensed and registered in the state of Washington.

“Reconstruction” means the rebuilding of an existing structure which has been partially or completely destroyed by any cause, such as but not limited to fire, wind, landslides, and water, without increasing the original floor area or square footage area.

“Recreational vehicle (RV)” means a vehicle built on a single chassis, 400 square feet or less when measured at the largest horizontal projection, designed to be self-propelled or permanently towable by a light duty truck, and designed primarily not for use as a permanent dwelling but as a temporary living quarters for recreational, camping, travel, or seasonal use.

“Regulated activities” means, but is not limited to, any of the following activities which are directly undertaken or originate in a regulated critical area or its buffer: building permit, commercial or residential; binding site plan; franchise right-of-way construction permit; site development permit; right-of-way permit; shoreline permits; short subdivision; use permits; subdivision; utility permits; or any subsequently adopted permit or required approval not expressly exempted by this title.

“Rehabilitation” means any improvements and repairs which are made to the interior and exterior of an existing structure, but which do not result in any increase in the floor area of the structure. This is also commonly referred to as a “remodel” of an existing structure.

“Restoration” means an action which returns habitat to a state in which its stability and functions approach its unaltered state as closely as possible. This may be accomplished through measures including, but not limited to, revegetation, removal of intrusive stream bank structures, and removal or treatment of toxic materials. Restoration does not imply a requirement for returning the critical area to aboriginal or pre-European settlement conditions.

“Revised Code of Washington (RCW)” means all laws of a general and permanent nature heretofore or hereafter enacted by the legislature, and assign permanent numbers as provided by law to all new titles, chapters, and sections thereof.

“Riparian” means the area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. Riparian habitat begins at the ordinary high water mark and includes the entire extent of the floodplain and riparian areas of wetlands that are directly connected to the stream course.

“Seismic hazard areas” means areas subject to severe risk of damage as a result of earthquake-induced ground shaking, slope failure, settlement, or soil liquefaction.

“Sensitive areas” mean agricultural lands and mineral resource lands and all associated buffers.

“Shoreline” for this title means the line where a body of water and the shore meet or the strip of land along the shoreline. There are no waters within the city of Edgewood meeting the criteria of shorelines of statewide significance as defined by RCW 90.58.030.

“Single-family dwelling” means a detached building designed exclusively for occupancy by one family and containing one dwelling unit.

“Site” means a lot, parcel, tract, or combination of lots, parcels, or tracts on which a regulated activity is proposed.

“Slope” means an inclined earth surface, the inclination of which is expressed as the ratio of horizontal distance to vertical distance.

“Sludge” means a semisolid substance consisting of settled solids combined with varying amounts of water and dissolved materials generated from a wastewater treatment plant or system or other sources, including septage sludge, sewage sludge, and industrial sludge.

“Sludge land application site” means a site where stabilized sludge, septage, and other organic wastes are applied to the surface of the land in accordance with established agronomic rates for fertilization or soil conditioning.

“Slump” means the downward and outward movement of a mass of bedrock, colluvium, or other sediments along a distinct surface of failure.

“Small animal” means an animal with an average weight of less than 100 pounds.

“Special occupancy structures” means those structures that have the potential to provide capacity for large numbers of people or special groups of people or assemblies such as but not limited to schools, jails and detention facilities, and resident incapacitated patients.

“Species of local importance” means species that are of local concern due to their population status or their sensitivity to habitat manipulation.

“Soft armoring techniques” means the use of woody plants and limited structural-mechanical systems that are integrated in a structurally and environmentally sound manner to repair and protect slopes and shorelines against shallow mass wasting and surface erosion. Measures such as live stake, live fascine, brushlayer, live cribwall, vegetated geogrid, branchpacking, live slope grading, beach berms, or earthen berms are examples of soft armoring techniques. Soft armoring techniques may also be referred to as soil bioengineering methods.

“Start of construction” includes substantial improvement, and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, placement or other improvement was within 180 days of the permit date. The “actual start” means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the “actual start of construction” means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

“Stockpiling” means the placement of material with the intent to remove it later.

“Stream” means a feature where surface waters produce a defined channel or bed. A defined channel or bed is an area that demonstrates clear evidence of the passage of water and includes, but is not limited to, bedrock channels, gravel beds, sand and silt beds, and defined-channel swales. The channel or bed need not contain water year-round. This definition is not intended to include artificially created irrigation ditches, canals, storm or surface water devices, or other entirely artificial watercourses, unless they are used by salmonids or created for the purposes of stream mitigation.

“Structure” means a walled and roofed building, including a gas or liquid storage tank that is principally above ground.

“Substantial damage” means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

“Substantial improvement” means any repair, reconstruction, addition, rehabilitation, or other improvement of a structure, whereby the cost for the work exceeds 50 percent of the market value of the existing structure before the “start of construction” of the improvement. This term includes structures which have incurred “substantial damage,” regardless of the actual repair work performed.

The term does not, however, include either:

1. Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions; or
2. Any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places; provided, that the alteration will not preclude the structure’s continued designation as a “historic structure.”

Except for floodplain management regulation, the “cost” and “market value” may be determined using the current permit valuation. The building official shall determine the current permit valuation based on the cost per square foot values in effect at the time of permit application. Substantial improvement shall be accumulative from the effective date of the ordinance codified in this chapter.

“Talus” means a homogenous area of rock rubble ranging in average size 0.15 to 2.0 meters (0.5 to 6.5 feet), including riprap slides and mine tailings. Talus areas may be associated with cliffs.

“Toe of slope” means a distinct topographic break in slope at the lowermost limit of the landslide or erosion hazard area.

“TPCHD” means the Tacoma-Pierce County Health Department.

“Underground storage tank” means any one or a combination of tanks (including underground pipes connected thereto) which are used to contain or dispense an accumulation of hazardous substances or hazardous wastes, and the volume of which (including the volume of underground pipes connected thereto) is 10 percent or more beneath the surface of the ground.

“Urban governmental services” means those governmental services historically and typically delivered by cities, and includes storm and sanitary sewer systems, domestic water systems, street cleaning services, and other public utilities associated with urban areas and normally not associated with nonurban areas.

“Urban growth” means growth that makes intensive use of the land for the location of buildings, structures, and impermeable surfaces to such a degree as to be incompatible with the primary use of such land for the production of food, other agricultural products, or fiber, or the extraction of mineral resources. When allowed to spread over wide areas, urban growth typically requires urban governmental services. “Characterized by urban growth” refers to land having urban growth located on it or to land located in relationship to an area with urban growth on it as to be appropriate for urban growth.

“Utility line” means pipe, conduit, cable, or other similar facility by which services are conveyed to the public or individual recipients. Such services shall include, but are not limited to, water supply, electric power, gas, communications, and sanitary sewers.

“Critical Areas Variance” means a grant of relief from the requirements of this title or that permits construction in a manner that would otherwise be prohibited by this title, per EMC 14.10.085.

“View corridor” means an area, which affords views of lakes, mountains, or other scenic amenities normally enjoyed by residential property owners.

“Violation” means the failure of a structure or other development activity to be fully compliant with the provisions of this title. With regard to the floodplain management regulations, projects without the elevation certificate, other certifications, or other evidence of compliance required in Chapter 14.70 EMC are presumed to be in violation until such time as that documentation is provided. See Chapter 1.10 EMC for penalties.

“Volcanic hazard areas” means those areas subject to pyroclastic flows, lava flows, and inundation by debris flows, mudflows, or related flooding resulting from geologic or volcanic events on Mount Rainier.

“Washington Administrative Code (WAC)” means state of Washington Administrative Code.

“Water dependent” means a structure for commerce or industry that cannot exist in any other location and is dependent on the water by reason of the intrinsic nature of its operations.

“Wellhead protection area” means the area within the 10-year time-of-travel zone boundary of a group A public water system well, as delineated by the water system purveyor or its designee, pursuant to WAC 246-290-135.

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

“Wetland category” means the numeric designation (I through IV) assigned to a wetland to indicate the wetland’s overall function and value. Wetland categories rank the city’s wetlands from highest (Category I) to lowest (Category IV) using the current version of the Washington State Wetland Rating System for Western Washington (Hruby, 2014)

“Wetland ~~class~~ “class”” means the U.S. Fish and Wildlife Service wetland classification scheme that uses a hierarchy of systems, subsystems, classes, and subclasses to describe wetland habitat types (refer to USFWS, December 1979, Classification of Wetlands and Deepwater Habitats of the United States for a complete explanation of the wetland classification scheme). These include, for example: forested, scrub-shrub, emergent, and aquatic bed.

“Wetland mosaic” means a patchwork of wetlands that is considered one unit where each patch of wetland is less than one acre and the areas delineated as vegetated wetland are more than fifty percent of the total area of the wetlands and uplands together.

“Wetland specialist” means a wetland scientist with at least two years of full-time work experience as a wetlands professional, including delineating wetlands using the federal manual and supplements, preparing wetland reports, conducting function assessment, and development and implementing mitigation plans.

“Wildlife biologist” means a professional with a degree in wildlife, or certification by the Wildlife Society, or with five years’ professional experience as a wildlife biologist. (Ord. 17-492 § 2 (Exh. A); Ord. 16-461 § 2; Ord. 15-447 § 1 (Exh. A); Ord. 02-200 § 2).

Chapter 14.20

USE AND ACTIVITY REGULATIONS

Sections:

- 14.20.010 Permitted uses.
- 14.20.020 Regulated uses and activities.
- 14.20.030 Exemptions.
- 14.20.040 Nonconforming uses and structures.
- 14.20.050 Reasonable use exceptions.
- 14.20.060 Current use assessment program.

14.20.010 Permitted uses.

Uses permitted on properties designated as critical areas shall be the same as those permitted in the zone classification shown in the City's Official Zoning Map unless specifically prohibited by this title. (Ord. 02-200 § 2).

14.20.020 Regulated uses and activities.

A. Unless the requirements of this title are met, the department shall not grant any approval or permission to alter the condition of any land, water, or vegetation, or to construct or alter any structure or improvement regulated through the following: building permit, commercial or residential; binding site plan; franchise right-of-way construction permit; site development permit; right-of-way permit; short subdivision; large lots; use permits; subdivision; utility permits; [Critical Areas Permit](#); [Critical Areas Variance](#); or any subsequently adopted permit or required approval not expressly exempted by this chapter.

B. The following activities [shall comply with the requirements of this Title if such activities take place are regulated](#) within critical areas and/or their buffers, unless exempted by EMC 14.20.030:

1. Removing, excavating, disturbing, or dredging soil, sand, gravel, minerals, organic matter, or materials of any kind;
2. Dumping, discharging, or filling;
3. Draining, flooding, or disturbing the water level or water table. In addition, an activity which involves intentional draining, flooding, or disturbing the water level or water table in a wetland or stream in which the activity itself occurs outside the regulated area shall be considered a regulated activity;
4. Driving, piling or placing obstructions, including placement of utilities;
5. Constructing, reconstructing, installing, demolishing, or altering the size of any structure or infrastructure, including manufactured and/or mobile homes;
6. Altering the character of a regulated area by destroying or altering vegetation through clearing, harvesting, cutting, intentional burning, shading, or planting;
7. The division of land;
8. The creation of hard surfaces.

14.20.030 Exemptions.

A. Individuals, organizations or associated parties shall avoid potential impacts to critical areas and their buffers to the greatest degree feasible. [For an activity to](#) be exempt from this title does not give permission to degrade a critical area or its buffer or ignore risk from natural hazards. Any incidental damage to, or alteration of, a critical area or its buffer that is not a necessary outcome of the exempted activity shall be restored, rehabilitated, or replaced at the responsible party's expense.

B. The following activities are exempt from the provisions of this title and shall not be required to obtain any permit and/or approval under this title:

1. Operation, maintenance, or repair of existing structures, infrastructure improvements, utilities, public or private roads, dikes, levees, or drainage systems, that do not require construction permits, if the activity does not further alter or increase the impact to, or encroach further within, the critical area or buffer and there is no increased risk to life or property as a result of the proposed operation, maintenance, or repair. Operation and maintenance includes vegetation management performed in accordance with best management practices that is part of ongoing maintenance of structures, infrastructure, or utilities, provided that such management actions are part of ongoing maintenance, do not expand further into the critical area or buffer, are not the result of an expansion of the structure or utility, and do not directly impact an endangered or threatened species.
2. Normal maintenance or repair of existing structures or developments, including damage by accident, fire, or elements. "Normal maintenance" includes those usual acts to prevent a decline, lapse, or cessation from a lawfully established condition. "Normal repair" means to restore a development to a state comparable to its original condition including, but not limited to, its size, shape, configuration, location, and external appearance, within a reasonable period after decay or partial destruction, except where repair causes substantial adverse effects to critical areas or their buffers. Replacement of a structure or development may be authorized as repair where such replacement is the common method of repair for the type of structure or development and the replacement structure or development is comparable to the original structure or development including, but not limited to, its size, shape, configuration, location, and external appearance and the replacement does not expand further into the critical area or buffer. Refer to EMC 14.20.040 (D) for requirements associated with repair of substantial damage of non-conforming structures.
3. Reconstruction, remodeling, or maintenance of existing single-family residential structures and accessory structures that are located outside a flood hazard area and active landslide hazard area; provided, that a one-time only expansion of the building footprint does not increase by more than 25 percent and that the new construction or related activity does not further intrude into the critical area or related buffer. The exemption shall not apply to reconstruction which is proposed as a result of structural damage associated with a critical area, such as slope failure in a landslide hazard area or flooding in a flood hazard area.
4. Reconstruction, remodeling, or maintenance of structures, other than single-family structures and accessory structures that are located outside a flood hazard area or active landslide hazard area; provided, that such reconstruction, remodeling, or maintenance does not increase the floor area nor extend beyond the existing ground coverage. The exemption shall not apply to reconstruction which is proposed as a result of site or structural damage associated with a critical area, such as slope failure in a landslide hazard area or flooding in a flood hazard area.
5. Site investigative work necessary for land use application submittals such as surveys, soil logs, percolation tests, and other related activities. Critical area impacts shall be minimized and disturbed areas shall be immediately restored.
6. Emergency actions necessary to prevent imminent threat or danger to public health or safety, or to public or private property, or serious environmental degradation.
 - a. The department shall review all proposed emergency actions to determine the existence of the emergency and reasonableness of the proposed actions taken; however, post-emergency actions, such as submittal of permits, completion of city review, modification or removal of the emergency repair work, or mitigation shall be required by the department.
 - b. Erosion protection measures shall only be allowed as an emergency action when the owner can demonstrate that there is an imminent threat to an existing residential, commercial, industrial, or agricultural structure. The owner shall retain either city staff or an engineering geologist to conduct a site investigation and provide adequate documentation that the situation is actually an emergency. An emergency action is not warranted when the structure is located outside the active landslide area.

c. After the emergency, the person or agency undertaking the action shall fully fund and conduct necessary restoration and/or mitigation for any impacts to the critical area and buffers resulting from the emergency action in accordance with an approved critical area report and mitigation plan. The person or agency undertaking the action shall apply for review, and the alteration, critical area report, and mitigation shall be reviewed by the department in accordance with the review procedures contained herein. Restoration and/or mitigation activities must be initiated within 90 days of the date of the emergency activity, and completed within one (1) year.

7. Installation, construction, replacement, repair, operation or alteration of natural gas, cable and telecommunication facilities, electric facilities and lines, water, sewer or storm lines, pipes, mains, equipment or appurtenances in publicly owned right-of-way (which may be within or adjacent to a critical area or its buffer), subject to full department review and approval of the department utility installation, including any mitigation and restoration requirements established by the department.

8. Removal by hand of manmade litter and control of noxious weeds that are included on the state noxious weed list (Chapter 16-750 WAC) or invasive plant species as identified by the city. Control may be conducted by clipping, pulling, or digging, or by an alternative non-mechanical method upon approval of a plan by the department.

9. Activities undertaken to comply with a United States Environmental Protection Agency superfund order, or a Washington Department of Ecology order, pursuant to the Model Toxics Control Act, including the following activities:

- a. Remediation or removal of hazardous or toxic substances;
- b. Source control; and
- c. Natural resource damage restoration.

10. Activities within a portion of a wetland buffer or fish and wildlife habitat conservation area buffer located landward of an existing, substantially developed area, such as a paved area, dike, levee, or permanent structure which eliminates or greatly reduces the impact of the proposed activities on the wetland or fish and wildlife habitat conservation area. The department shall review the proposal to determine the likelihood of associated impacts.

11. Passive recreation such as hunting, hiking, fishing, and wildlife viewing that does not involve the construction of trails.

12. Enhancement actions that do not involve clearing, grading, or construction activities (e.g., revegetation with native plants and installation of nest boxes). Enhancement activity proposals shall be reviewed by the department.

13. Forest practices conducted in accordance with the requirements of the Forest Practice Act (Chapter 76.09 RCW) and its rules, with the exception of the conversion of forest land to a use other than commercial forestry (Class IV conversions).

14. Existing and ongoing agricultural activities, provided that they implement applicable Best Management Practices (BMPs) contained in the latest editions of the USDA Natural Resources Conservation Service Field Official Technical Guide; or develop a farm conservation plan in coordinate with the local conservation district. BMPs and/or farm plans should address potential impacts to critical areas from livestock, nutrient and farm chemicals, soil erosion and sediment control and agricultural drainage infrastructure. BMPs and/or farm plans should ensure that ongoing agricultural activities minimize their effects on water quality, riparian ecology, salmonid populations, and wildlife habitat.

(Ord. 02-200 § 2).

Commented [AN36]: No, approval of the utility installation.

14.20.040 Nonconforming uses and structures.

An established use or existing structure located in a wetland, fish and wildlife habitat conservation area, landslide or erosion hazard area, flood hazard area, and their associated buffers that was lawfully permitted prior to the effective date of this title, but which is not currently in compliance with this title, may continue subject to the following:

A. Nonconforming Use Expansion. Nonconforming uses shall not be expanded or changed in any way that increases the nonconformity without a permit issued pursuant to the provisions of this title.

B. Nonconforming Structure Expansion. Existing structures shall not be expanded or altered in any manner that will increase the nonconformity without a permit issued pursuant to the provisions of this title, except as provided in EMC 14.20.030(B).

C. Discontinued Uses. Activities or uses which are discontinued for twelve (12) consecutive months shall be allowed to resume only if they are in compliance with this title.

D. Substantial Damage. Nonconforming structures, except for structures located in a flood hazard area or active landslide hazard area which are damaged or destroyed by fire, explosion, flood, or other casualty, may be restored or replaced if reconstruction is commenced within one year of such damage and is substantially completed within eighteen (18) months of the date such damage occurred. The reconstruction or restoration shall not serve to expand, enlarge, or increase the nonconformity except as allowed through the provisions in EMC 14.20.030(B). Structures in a floodway or active landslide hazard area may be allowed to be restored only up to the limits of substantial improvement, as set forth in each chapter. (Ord. 02-200 § 2).

14.20.050 Reasonable use exceptions.

A. General Requirements.

1. If, after a property owner makes application for a variance, and the variance is denied, the property owner may apply for a reasonable use exception. A reasonable use exception may be requested when it is alleged that the application of this title would deny all reasonable use of a site. Approval of a reasonable use exception allows ~~development~~ development which is consistent with the general purposes of this title and the public interest. Nothing in this title is intended to preclude all reasonable use of property.

2. The provisions outlined in this section shall only be used when application of this title would deny all reasonable use of a site.

3. Applications for a reasonable use shall automatically constitute an application for a variance to reduce front, side, or rear yard setback requirements. ~~The decision~~ The decision maker shall examine the feasibility of reducing setbacks as a method of locating a structure outside a critical area or its associated buffer prior to granting a reasonable use exception for allowing construction to occur within a critical area or its associated buffer. Reductions in setback requirements shall be given preference over granting of a reasonable use exception.

5. The proposed impact to the critical area shall be the minimum necessary to allow for reasonable use of the property.

6. Mitigation may be required to assure that the proposal will result in no net loss of critical area functions and values, consistent with the best available science.

7. The creation of new lots within critical areas and their associated buffers is prohibited.

8. The proposal must comply with all provisions in Chapter 14.70 EMC, Flood Hazard Areas, and Chapter 14.80 EMC, Landslide Hazard Areas.

B. Application Requirements. A complete application for a reasonable use exception shall include the following information:

1. A description of the areas of the site that contains a critical area, buffers, or within setbacks required under this title;

2. A description of the amount of the site that is within setbacks required by other standards of the zoning code;
3. A description of the proposed development, including a site plan;
4. An analysis of the impact that the amount of development described in subsection (B)(3) of this section would have on the critical area(s);
5. An analysis of whether any other reasonable use with less impact on the critical area(s) and associated buffer(s) is possible;
6. A design of the proposal so that the amount of development proposed as reasonable use will have the least impact practicable on the critical area(s);
7. An analysis of the modifications needed to the standards of this title to accommodate the proposed development;
8. A description of any modifications needed to the required front, side, and rear setbacks; building height; and buffer widths to provide for a reasonable use while providing greater protection to the critical area(s);
9. Such other information as the department determines is reasonably necessary to evaluate the issue of reasonable use as it relates to the proposed development, such as but not limited to a wetland analysis report, mitigation plan, habitat evaluation study, and/or a buffer enhancement plan.

C. Review. A reasonable use exception is a Type III — permit and shall be processed according to the procedures in chapter 18.40.100 — EMC.

1. Public Hearing Required. The department shall set a date for a public hearing after all requests for additional information or plan correction, as set forth in EMC 18.40.150, have been satisfied. The public hearing shall follow the procedures set forth in EMC 18.40.190, Notice of public hearing.
2. Decision Criteria. ~~The decisionmaker~~The decisionmaker may approve a reasonable use exception if ~~the decisionmaker~~the decisionmaker determines that the applicant has ~~demonstrated~~demonstrated that all of the following criteria are met:
 - a. The proposed development is located on an existing lot of record that was created prior to the effective date of the ordinance codified in this title and there is no other reasonable use or feasible alternative to the proposed development with less impact on the critical area(s) and/or associated buffers including phasing or project implementation, change in timing of activities, buffer averaging or reduction, setback variance, relocation of driveway, or placement of structure; and
 - b. The development cannot be located outside the critical area and/or its associated buffer due to topographic constraints of the parcel or size and/or location of the parcel in relation to the limits of the critical area and/or its associated buffer and a building setback variance or road variance has been reviewed, analyzed, and rejected as a feasible alternative; and
 - c. The proposed development does not pose a threat to the public health, safety, or welfare on or off the site, nor shall it damage nearby public or private property; and
 - d. Any alteration of the critical area(s) shall be the minimum necessary to allow for reasonable use of the property; and
 - e. The inability of the applicant to derive reasonable use of the property is not the result of actions by the applicant in subdividing the property or adjusting a boundary line thereby creating the undevelopable condition after February 1, 1992; and
 - f. The proposal mitigates the impacts on the critical area(s) to ensure no net loss of critical area functions, while still allowing reasonable use of the site; and.

g. The proposed activities will not jeopardize the continued existence of species listed by the state or federal government as endangered, threatened, sensitive, or documented priority species or priority habitats; and.

h. The proposed activities will not cause significant degradation of groundwater or surface water quality.

3. Decisionmaker's Authority. The decisionmaker has the authority to approve an application for a reasonable use exception, approve with additional requirements above those specified in this title, require modification of the proposal to comply with specified requirements or local conditions, or deny the application if it fails to comply with the requirements of this section.

4. Required Written Findings and Determinations. A reasonable use exception may be approved by the decisionmaker only if all of the findings are made in writing regarding the proposal and are supported by the record, as outlined in the decision criteria identified within EMC 14.20.050 (C)(2).

14.20.060 Current use assessment program.

A. An owner of agricultural land, timberland, or open space desiring current use classification under Chapter 84.34 RCW may file for such current use classification with the Pierce County assessor-treasurer's office.

B. The department shall notify the assessor-treasurer's office when restrictions on development occur on a particular site.

C. The assessor-treasurer's office shall consider the critical areas and buffering requirements of this title in determining the fair market value of land. Any owner of an undeveloped buffer which has been placed in a separate tract or tracts, protective easement, public or private land trust dedication, or other similarly preserved area shall have that portion of land assessed consistent with those restrictions. (Ord. 02-200 § 2).

Chapter 14.30

WETLANDS

Sections:

- 14.30.010 Purpose.
- 14.30.020 Wetland identification, delineation, and rating.
- 14.30.025 Buffer standards—Wetlands
- 14.30.030 Wetland review procedures.
- 14.30.040 Allowed activities.
- 14.30.060 Mitigation requirements.
- 14.30.070 Appendices.

14.30.010 Purpose.

The purpose of this chapter is to avoid or, in appropriate circumstances, to minimize, rectify, reduce, or compensate for impacts arising from land development and other activities affecting wetlands, and to maintain and enhance the biological and physical functions and values of wetlands with respect to water quality maintenance, stormwater and floodwater storage and conveyance, fish and wildlife habitat, primary productivity, recreation, education, and historic and cultural preservation. When wetland impacts occur, mitigation will be required to achieve no net loss of wetlands in terms of acreage, function, and value. (Ord. 02-200 § 2).

14.30.020 Wetland identification, delineation, and rating.

A. Designation. All areas within the city meeting the meeting the definition of “wetland” in Chapter 14.15 EMC are hereby designated critical areas.

B. Identification and Delineation. Wetlands shall be identified and delineated by a qualified wetland scientist in accordance with the approved federal wetland delineation manual and applicable regional supplements. Wetland delineations are valid for 5 years, after which date the City shall require verification that the wetland boundaries and prior conditions have not changed.

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C. Mapping. The approximate location and extent of wetlands are shown on maps maintained by the city. These maps are useful as a guide for project applicants and/or property owners but do not provide a conclusive or definitive indication of wetland presence or extent. Other wetlands may exist that do not appear on the maps, and some wetlands that appear on the maps may not meet all of the wetland designation criteria. The city shall update the maps periodically as new wetland areas are identified and as new wetland information becomes available

D. Wetland Categories. Wetlands shall be categorized by a qualified wetland scientist in accordance with the current version of the Washington State Wetland Rating System for Western Washington (Hruby, 2014) and the appropriate rating forms approved by the Washington State Department of Ecology. The wetland shall also be classified according to the U.S. Fish and Wildlife Service “Classification of Wetlands and Deep Water Habitats in the U.S”.

14.30.025 Buffer standards – Wetlands.

A. Determining buffer widths. Buffer widths shall be measured horizontally from the perpendicular line established at the wetland edge as shown in Table 14.20.050(1).

Table 14.30.025(1)
Buffer Standards - Wetlands

Wetland Category	Buffer Width (Wetlands scores 3-4 habitat points)	Buffer Width (Wetland scores 5 habitat points)	Buffer Width (Wetland scores 6- 7 habitat points)	Buffer Width (Wetland scores 8- 9 habitat points)
Category I: Based on total score	75 ft.	105 ft.	165 ft.	225 ft.
Category I: Bogs and Wetlands of High Conservation Value	190 ft.	190 ft.	190 ft.	225 ft.
Category I: Forested	75 ft.	105 ft.	165 ft.	225 ft.
Category II (all)	75 ft.	105 ft.	165 ft.	225 ft.
Category III (all)	60 ft.	105 ft.	165 ft.	225 ft.
Category IV (all)	40 ft.	40 ft.	40 ft.	40 ft.

B. Required Measures to Minimize Impacts to Wetlands. Measures to minimize the impacts of the land use adjacent to wetlands shall be applied, as shown in Table 14.20.050(2).

Table 14.30.025(2)
Wetland Impact Minimization Measures

Disturbance	Required Measures to Minimize Impacts
Lights	Direct lights away from wetland
Noise	- Locate activity that generates noise away from wetland - For activities that generate relatively continuous, potentially disruptive noise, such as certain heavy industry or mining, establish an additional 10-foot heavily vegetated buffer strip immediately adjacent to the outer wetland buffer
Toxic runoff	- Route all new, untreated runoff away from wetland while ensuring wetland is not dewatered - Establish covenants limiting use of pesticides within 150 feet of wetlands - Apply integrated pest management
Stormwater runoff	- Retrofit stormwater detention and treatment for roads and existing adjacent development - Prevent channelized flow from lawns that directly enters the buffer - Use Low Impact Development techniques
Change in water regime	Infiltrate or treat, detain, and disperse into buffer new runoff from impervious surfaces and new lawns
Pets and human disturbance	Use privacy fencing OR plant dense vegetation to delineate buffer edge and to discourage disturbance using vegetation appropriate for the ecoregion

	• Place wetland and its buffer in a separate tract or protect with a conservation easement
Dust	• Use best management practices to control dust

C. Modification of Buffer Widths. The standard buffer widths of subsection (A) of this section may be modified by averaging, reducing, or increasing.

1. Buffer Averaging. Buffer width averaging may be allowed only where the applicant demonstrates all of the following:

- a. Buffer encroachment is unavoidable.
- b. The wetland contains variations in sensitivity due to existing physical characteristics.
- c. Width averaging will provide equal or greater protection of current wetland functions and values.
- f. The total buffer area after averaging is no less than the buffer area prior to averaging.
- g. The minimum width of the buffer at any given point shall be at least seventy-five percent (75%) of the standard width, or twenty-five (25) feet, whichever is greater.
- h. The averaging is accomplished within the project boundaries.

2. Buffer Width Reductions. Buffer width reduction up to a maximum of twenty-five (25) percent may be allowed when the applicant demonstrates the following circumstances:

- a. Buffer encroachment is unavoidable.
- b. All exposed areas are stabilized with native vegetation, as appropriate.
- c. The project includes a buffer enhancement plan as part of the mitigation required by EMC 14.30.060. The buffer enhancement plan shall use plant species which are native, noninvasive to the project area.
- d. Buffer reduction with enhancement will provide equal or greater protection of current wetland functions and values.
- e. Buffer reductions may not be used in combination with buffer averaging.

3. Buffer Increases. The department may require increased buffer width(s) when any of the following are identified:

- a. A larger buffer is necessary to maintain viable populations of existing species;
- b. The wetland is used by, or associated with, species listed by the federal government or the state as endangered, threatened, sensitive, or as documented priority species or habitats, or essential or outstanding potential sites such as heron rookeries or raptor nesting areas;
- c. The adjacent land is susceptible to severe erosion and erosion control measures will not effectively prevent adverse wetland impacts;
- d. The adjacent land has minimal vegetative cover, or slopes greater than 20 percent. (Ord. 02-200 § 2).

14.30.030 Wetland review procedures.

A. Wetland Report Requirements. When the department's maps, sources, or field investigations indicate that the proposed project area is located within 300 feet of a known or suspected wetland, an applicant shall submit a wetland critical areas report prepared by a qualified wetland scientist. The requirement to provide a wetland critical areas report may be waived if the department determines that there are no potential direct and/or indirect impacts on wetlands or their buffers that would result from the proposed development. Wetland critical areas reports shall comply with the requirements established in EMC 14.30.070, Appendix A.

B. Single-Family Dwelling Wetland Review. Construction of a single-family dwelling and regulated activities accessory to a single-family dwelling (such as driveways, gardens, fences, walls, lawns, and on-site septic systems) may utilize an alternative wetland review procedure, subject to the following:

1. Prior to issuance of a building permit, site development permit, or on-site sewage system permit, the applicant shall submit a single-family wetland certification form completed by a wetland specialist that certifies either:
 - a. No regulated wetlands are present within 300 feet of the project area; or
 - b. Wetlands are present within 300 feet of the project area, but the buffer does not extend onto the project site.
2. The single-family certification form may be used only to authorize single-family dwellings and accessory structures. It may not be used for new agricultural activities, expansion of existing agricultural activities, forest practices activities, commercial projects, land divisions, and buffer width modifications.

C. Time Limitation. Wetland delineations and reports that have been accepted by the city shall be valid for a period of five (5) years, unless the department determines that new information warrants revision of the delineation or report.

14.30.040 Allowed activities.

A. The following wetlands are exempt from the requirement to avoid impacts in EMC 14.10.080(B) and may be altered if the impacts are fully mitigated based on the remaining mitigation sequencing actions in EMC 14.10.080(B). In order to verify the following conditions, a wetland critical areas report meeting the requirements of EMC 14.30.070, Appendix A must be submitted.

1. All isolated Category IV wetlands less than 4,000 square feet that:
 - a. Are not associated with riparian areas or their buffers;
 - b. Are not part of a wetland mosaic;
 - c. Are not associated with shorelines of the state or their associated buffers;
 - d. Do not score 5 or more points for habitat functions based on current version of the Washington State Wetland Rating System for Western Washington (Ecology, 2014).
 - e. Do not contain a Priority Habitat or a Priority Area for a Priority Species identified by the Washington Department of Fish and Wildlife, federally listed species or their critical habitat, or habitats or species of local importance as identified in EMC 14.40.030(A).
2. Wetlands less than 1,000 square feet that meet the criteria specified in subsection (A)(1) of this section.
3. Utility projects within wetland buffers which have minor or short-duration impacts, as determined by the department in accordance with the criteria below, and which do not significantly impact the function or values of wetlands; provided, that such projects are constructed with best management practices and additional restoration measures are provided. Minor activities shall not result in the

transport of sediment or increased stormwater. Such allowed minor utility projects shall meet the following criteria:

- a. There is no practical alternative to the proposed activity with less impact on wetlands;
- b. The activity involves the placement of a utility pole, street signs, anchor, or vault or other small component of a utility facility; and
- c. The activity involves disturbance of an area less than 75 square feet.

B. The activities listed below are allowed in wetlands and their buffers, and do not require submission of a critical area report, except where such activities would result in a loss of the functions and values of a wetland or wetland buffer. These activities include:

1. Activities in wetlands in areas managed according to a special area management plan or other plan adopted by the department and specifically designed to protect wetland resources.
2. Trimming of vegetation for purposes of providing view corridors will be allowed; provided, that trimming shall be limited to view corridors of a maximum 20-foot width and that benefit to fish and wildlife habitat are not reduced. Trimming shall be limited to hand pruning of branches and vegetation. Trimming shall not include felling, topping, or removal of trees. (Ord. 02-200 § 2).
3. Drilling for utilities/utility corridors under a wetland, with entrance/exit portal located completely outside of the wetland buffer, provided that the drilling does not interrupt the ground water connection to the wetland or percolation of surface water down through the soil column. Specified studies by a hydrologist are necessary to determine whether the ground water connection to the wetland or percolation of surface water down through the soil column will be disturbed.

14.30.060 Mitigation requirements.

A. Mitigation. Compensatory mitigation is required for all unavoidable alterations to wetlands or their buffers, except for buffer averaging when done in accordance with EMC 14.30.025(C)(1). Compensatory mitigation actions shall replace functions affected by the alteration and shall provide equal or greater functions compared to the impacted wetland. All projects must first demonstrate compliance with EMC 14.10.080(B) (Mitigation Sequencing) prior to development of compensatory mitigation plans.

B. Preference of Mitigation Actions. Compensatory wetland mitigation shall occur in the following order of preference:

1. Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural or historic functions to a former or degraded wetland. For the purpose of tracking net gains in wetland acres, restoration is divided into:
 - a. Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural or historic functions to a former wetland. Re-establishment results in a gain in wetland acres (and functions). Activities could include removing fill material, plugging ditches, or breaking drain tiles.
 - b. Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural or historic functions of a degraded wetland. Rehabilitation results in a gain in wetland function but does not result in a gain in wetland acres. Activities could involve breaching a dike to reconnect wetlands to a floodplain or return tidal influence to a wetland
2. Creation: The manipulation of the physical, chemical, or biological characteristics of a site to develop a wetland on an upland or deepwater site where a wetland did not previously exist. Creation results in a gain in wetland acres. Activities typically involve excavation of upland soils to elevations that will produce a wetland hydroperiod, create hydric soils, and support the growth of hydrophytic plant species.
3. Enhancement: The manipulation of the physical, chemical, or biological characteristics of a wetland site to heighten, intensify, or improve specific function(s) or to change the growth stage or composition of the

vegetation present. Enhancement is undertaken for specified purposes such as water quality improvement, flood water retention, or wildlife habitat. Enhancement results in a change in some wetland functions and can lead to a decline in other wetland functions, but does not result in a gain in wetland acres. Activities typically consist of planting vegetation, controlling non-native or invasive species, modifying site elevations or the proportion of open water to influence hydroperiods, or some combination of these activities

C. Approaches to Compensatory Mitigation. Mitigation for alterations to wetland and their buffers shall rely on the approaches listed below.

1. Wetland Mitigation Banks. Credits from a certified wetland mitigation bank may be used to compensate for impacts within the service area specified in the mitigation bank instrument. Use of credits from a wetland mitigation bank certified under Chapter 173-700 WAC is allowed if:
 - a. The department determines that it would provide appropriate compensation for the proposed impacts; and
 - b. The impact site is located in the service area of the bank.
 - c. The proposed use of credits is consistent with the terms and conditions of the certified bank instrument.
 - d. Replacement ratios for projects using bank credits is consistent with replacement ratios specified in the certified mitigation bank instrument.
2. In-Lieu Fee Mitigation. Credits from an approved in-lieu-fee program may be used when all the following apply:
 - a. The approval authority determines that it would provide environmentally appropriate compensation for the proposed impacts.
 - b. The proposed use of credits is consistent with the terms and conditions of the approved in-lieu-fee program instrument.
 - c. Project using in-lieu-fee credits shall have debits associated with the proposed impacts calculated by the applicant's qualified wetland scientist using the credit assessment method specified in the approved instrument for the in-lieu-fee program.
 - d. The impacts are located within the service area specified in the approved in-lieu-fee instrument.
3. Permittee-responsible mitigation. In this situation, the permittee performs the mitigation after the permit is issued and is ultimately responsible for implementation and success of the mitigation. Permittee-responsible mitigation may occur at the site of the permitted impacts or at an off-site location within the same watershed. If available, the use of wetland mitigation banks and in-lieu-fee programs are preferable to permittee-responsible mitigation.

D. Wetland mitigation ratios. The ratios listed in Table 14.30.060 apply to permittee-responsible mitigation. The first number specifies the acreage of replacement wetlands required, and the second number specifies the acreage of wetlands altered or relocated.

Table 14.30.060
Wetland Mitigation Ratios

Category and Type of Wetland	Creation or Re-establishment	Rehabilitation	Enhancement
Category I: High conservation value/bog	Not considered possible	Not considered possible	Not considered possible
Category I: Mature and old growth forest	6:1	12:1	24:1
Category I: Based on functions	4:1	8:1	16:1
Category II	3:1	6:1	12:1
Category III	2:1	4:1	8:1
Category IV	1.5:1	3:1	6:1

The director may increase the ratios under the following circumstances:

1. Uncertainty as to the probable success of the proposed restoration or creation;
2. Significant period of time between destruction and replication of wetland values;
3. Projected losses in functional value;
4. The compensatory mitigation is off site.

E. Wetland buffer mitigation. To mitigate unavoidable impacts to functions and values of wetland buffers, a minimum buffer ratio of 1:1 (alteration area: mitigation area) is required. This ratio assumes that creation/restoration of a wetland buffer with appropriate native vegetation is sufficient to compensate for the wetland buffer functions and values affected by alteration of an existing wetland buffer. If enhancement of an existing wetland buffer is proposed as mitigation, a higher mitigation ratio may be required. For any proposed wetland buffer activities, the applicant must demonstrate that the functions and values of the altered wetland buffer will be fully replaced by the proposed mitigation. The department may increase the buffer mitigation ratios under the following circumstances:

1. The replacement ratio needed to recover the lost functions and values of buffer area is greater than 1:1 based upon the existing type of vegetative cover of either the impact site or the proposed mitigation site.
2. Uncertainty exists as to the probable success of the proposed restoration or creation;
3. A significant period of time will elapse between impact and replication of wetland functions;
4. The impact was an unauthorized impact.

F. Wetland and buffer mitigation plans. Compensatory wetland mitigation plans shall be consistent with Wetland Mitigation in Washington State – Part 2: Developing Mitigation Plans (Ecology, 2006); and Selecting Wetland Mitigation Sites Using a Watershed Approach (Ecology, 2009), or as revised. Mitigation plans shall comply with the requirements established in EMC 14.30.070, Appendix B.

14.30.070 Appendices.

A. Wetland Report.

B. Wetland Mitigation Plan

APPENDIX A

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WETLAND REPORT

A. A wetland critical areas report shall, at a minimum, include the following:

1. The general critical areas report requirements in EMC 14.10.082;
2. Map showing the location of all wetlands and required buffers within three hundred (300) feet of the proposed development;
3. An analysis of the onsite wetland(s) include the following site- and proposal-related information:
 - a. Documentation of any fieldwork performed on the site, including, but not limited to, field delineation data sheets for delineations and wetland rating forms;
 - b. Wetland acreage;
 - c. Wetland category;
 - d. A discussion of the water sources supplying the wetland and documentation of hydrologic regime (locations of inlet and outlet features, water depths throughout the wetland, evidence of recharge or discharge);
 - e. A discussion of the functions of existing wetlands, including vegetative, faunal, and hydrologic conditions; and
 - f. A description of the methodologies used to conduct the wetland delineations;
4. A discussion of measures, including avoidance, minimization, and mitigation, proposed to preserve existing wetlands;
5. A detailed discussion of the direct and/or indirect potential impacts on the wetland by the project; and
6. The wetland mitigation plan requirements of EMC 14.30.070, Appendix B, if the activity will result in unavoidable impacts to wetlands or their buffers.

APPENDIX B

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WETLAND MITIGATION PLAN

A. A wetland mitigation plan shall, at a minimum, include the following:

1. The general mitigation plan requirements in EMC 14.10.083 and the following information:
2. Existing and proposed wetland acreage;
3. Vegetative and faunal conditions;
4. Surface and subsurface hydrologic conditions including an analysis of existing and future hydrologic regime and proposed hydrologic regime for enhanced, created, or restored mitigation areas;
5. Relationship within watershed and to existing waterbodies;
6. Soils and substrate conditions, topographic elevations;

7. Existing and proposed adjacent site conditions;
8. Required wetland buffers (including any buffer reduction or averaging and mitigation proposed to enhance buffers);
9. Property ownership;
10. A discussion of ongoing management practices that will protect wetlands after the project site has been developed, including proposed monitoring and maintenance programs;
10. A bond estimate for the installation (including site preparation, plant materials and installation, fertilizers, mulch) and the proposed monitoring and maintenance work for the required number of years, pursuant to EMC 14.10.080(E).

Chapter 14.40**FISH AND WILDLIFE HABITAT CONSERVATION AREAS**

Sections:

- 14.40.010 Purpose.
- 14.40.020 Fish and wildlife habitat conservation area identification and classification.
- 14.40.025 Buffer standards—Fish and wildlife habitat conservation areas.
- 14.40.030 Fish and wildlife habitat conservation area review procedures.
- 14.40.040 Allowed activities.
- 14.40.050 Alteration of Watercourses
- 14.40.060 Mitigation requirements.
- 14.40.070 Appendix

14.40.010 Purpose.

Many land use activities can impact the habitats of fish and wildlife. Special care must be taken in the management of lands that support fish and wildlife species to ensure that development occurs in a manner that is sensitive to their habitat needs. The purpose of this chapter is to identify fish and wildlife habitat conservation areas and establish habitat protection procedures and mitigation measures that are designed to result in no net loss of habitat functions and values. (Ord. 02-200 § 2).

14.40.020 Fish and wildlife habitat conservation area identification and classification.

A. Designation. Fish and wildlife habitat conservation areas include:

1. Waters of the state. Waters of the state include lakes, rivers, ponds, streams, and all other surface waters and watercourses within jurisdiction of the state of Washington, as classified in WAC 222-16-030.
2. Areas with which federally designated endangered, threatened, and sensitive species have a primary association. The U.S. Fish and Wildlife Service and the National Marine Fisheries Service should be consulted for current federal listing status.
3. Areas with which state designated endangered, threatened, and sensitive species have a primary association. The Washington State Department of Fish and Wildlife should be consulted for current state listing status.
4. State priority habitats and areas associated with state priority species. The state Department of Fish and Wildlife should be consulted for current listing of priority habitats and species.
5. Habitats and species of local importance. The following fish and wildlife species and their associated habitat areas shall be regulated under this chapter:
 - a. Fish. Coho salmon (*Oncorhynchus kisutch*), pink salmon (*Oncorhynchus gorbuscha*), chum salmon (*Oncorhynchus keta*), cutthroat trout (*Oncorhynchus clarkia*), and steelhead (*Oncorhynchus mykiss*).
 - b. Birds. Great blue heron (*Ardea herodias*) and green heron (*Butorides virescens*).
 - c. Areas with which state-listed monitor or candidate fish or wildlife species or federally listed candidate fish or wildlife species have a primary association, and which if altered may reduce the likelihood that the species will survive and reproduce over the long term.
 - d. Heron rookeries.

B. Habitat boundary survey. If the department determines that a regulated habitat conservation area may be present within the project vicinity, the department may require the habitat area to be delineated and/or mapped by a qualified

~~Chapter 14.40 FISH AND WILDLIFE HABITAT~~
CONSERVATION AREAS

fisheries biologist or wildlife biologist who is knowledgeable of fish and wildlife habitat within western Washington, or by the Washington Department of Fish and Wildlife. The boundary of aquatic habitats shall be the ordinary high water mark of the waterbody. The management recommendations for Washington's priority habitats and species or federal equivalent should be used as a tool for identifying and delineating wildlife habitat boundaries. The city may waive this requirement if there is adequate information available on the area proposed for development to determine the impacts of the proposed development and appropriate mitigating measures.

C. Mapping. The approximate location and extent of waters of the state and fish presence within the city are shown on maps maintained by the city. The city shall update the maps periodically as new information becomes available. The approximate location and extent of other fish and wildlife habitat conservation areas area shown on maps maintained by the Washington State Department of Fish and Wildlife and other state and federal agencies. These maps are to be used as a guide and do not provide definitive information about fish and wildlife habitat conservation area size or presence. Fish and wildlife habitat conservation areas may exist that do not appear on the maps.

D. Waters of the state classification. The city hereby adopts the water typing system specified in WAC 222-16-030, as described below:

1. Type S. All waters, within their ordinary high water mark, meeting the criteria as "shorelines of the state" and "shorelines of statewide significance" under RCW Chapter 90.58. As of the effective date of this title, there are no Type S streams within city jurisdiction.
2. Type F: segments of natural waters other than Type S Waters, which are within the bankfull widths of defined channels and periodically inundated area of their associated wetlands, or within lakes, ponds, or impoundments having a surface area of 0.5 acre or greater at seasonal low water and which in any case contain fish habitat.
3. Type Np: all segments of natural waters within the bankfull width of defined channels that are perennial non-fish habitat stream. Perennial stream waters do not go dry any time of a year of normal rainfall. However, for the purpose of water typing, Type Np Waters include the intermittent dry portions of the perennial channel below the uppermost point of perennial flow.
4. Type Ns: All segments of natural waters within the bankfull width of the defined channels that are not Type S, F, or Np waters. These are seasonal, non-fish habitat streams in which surface flow is not present for at least some portion of a year of normal rainfall and are not located downstream from any stream reach that is a Type Np Water. Ns Waters must be physically connected by an above-ground channel system to Type S, F, or Np Waters.

14.40.025 Buffer standards—Fish and wildlife habitat conservation areas.

A. Determining buffer widths. Buffers shall be required as set forth for each habitat type. The required buffers shall be delineated, both on a site plan or plat, and on the property prior to approval of any regulated activity.

1. Aquatic habitat conservation areas.
 - a. Buffers for aquatic habitat conservation areas shall be based upon the water type classification of the water body as specified in WAC 22-16-030. Refer to Table 14.40.025 for the water types and the associated buffer requirements.
 - b. The required buffer width shall be measured in all directions from the ordinary high water mark.
 - c. The required buffer shall be extended to include any adjacent regulated wetland(s), landslide hazard areas, and/or erosion hazard areas and required buffers.
2. Non-aquatic habitat conservation areas. Appropriate buffers for critical habitat areas and species not listed in Table 14.40.025 shall be determined by the Washington Department of Fish and Wildlife or by a qualified wildlife biologist and documented in an approved habitat management plan.

**Table 14.40.025
Buffer Standards**

Water Type	Buffer Width ¹
Type S	150 ft. ²
Type F	100 ft.
Type Np	60 ft.
Type Ns	35 ft.

¹ In the event that buffers for any habitat conservation area or other critical area are contiguous or overlapping, the landward-most edge of all such buffers shall apply.

² As of the effective date of this title, there are no Type S streams within city jurisdiction.

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BC. Modification to Buffer Width Requirements. The standard buffer widths of subsection (A) of this section may be modified as follows:

1. Buffer Width Reductions. A buffer width reduction may be proposed through submittal of a habitat management plan. Buffer reductions of up to a maximum of 25 percent may be allowed when the applicant demonstrates the following circumstances:

- a. Buffer encroachment is unavoidable.
- b. The existing buffer is predominately un-vegetated, composed of nuisance species, or is in an otherwise highly disturbed condition.
- c. Buffer reduction with enhancement will provide equal or greater protection of current habitat functions and values, and will not adversely affect salmon habitat.
- d. The buffer reduction will not increase the risk of slope failure or downslope stormwater drainage impacts.
- e. The minimum width of the buffer at any given point shall be at least seventy-five (75) percent of the standard width, or twenty-five (25) feet, whichever is greater.
- f. The project includes a buffer enhancement plan as part of the mitigation required by EMC 14.40.060. The buffer enhancement plan shall use native plant species.

2. Buffer Width Increases. The department may require increased buffer width(s) when any of the following are identified:

- a. A larger buffer is necessary to maintain viable populations of existing species or protect the existing functions of the habitat area;
- b. The adjacent land is susceptible to severe erosion and erosion control measures will not effectively prevent adverse habitat impacts;
- c. The adjacent land has minimal vegetative cover or slopes greater than 20 percent; or
- d. The habitat area is in an area of high tree blow down potential. In these cases the habitat area may be expanded an additional 50 feet on the windward side.

14.40.030 Fish and wildlife habitat conservation area review procedures.

A. Habitat management plan. When the department's maps, sources, or field investigations indicate that the proposed project area is located within 300 feet of a known or suspected fish or wildlife habitat conservation area, an applicant shall submit a habitat management plan prepared by a qualified fisheries biologist or wildlife biologist. The requirement to provide a habitat conservation plan for habitat conservation areas may be waived if the department determines that there are no potential direct and/or indirect impacts on designated species or habitats that would result from the proposed development. Habitat management plans shall comply with the requirements established in EMC 14.40.070, Appendix A.

14.40.040 Allowed activities.

A. The following activities may be permitted in habitat conservation areas and/or their buffers when all reasonable measures have been taken to avoid and mitigate adverse effects on species and habitats and a net loss of habitat functions will not occur. In order to verify the following conditions, a habitat management plan meeting the requirements of EMC 14.40.070, Appendix A must be submitted.

1. Stream Erosion Control Measures. New or replacement stream erosion control measures shall be subject to the following standards:

- a. The proposal complies with the provisions set forth in Chapter 14.110 EMC.
- b. The required habitat management plan demonstrates the following:
 - i. Natural stream processes will be maintained. The project will not result in increased beach erosion or alterations to, or loss of, stream substrate within one-quarter mile of the site.
 - ii. The stream erosion control measure will not adversely impact fish or wildlife habitat conservation areas or associated wetlands.

2. Docks and launching ramps. Construction, reconstruction, repair, and maintenance of docks and public or private launching ramps are subject to all of the following:

- a. The dock or ramp is located and oriented and constructed in a manner that minimizes adverse effects on water quality, movement of aquatic and terrestrial life, ecological processes, spawning habitat, and wetlands.
- b. Docks and ramps shall meet or exceed all relevant state and federal permit requirements.

3. Roads, Trails, Bridges, and Rights-of-Way. Construction of trails, roadways, bridges, and culverts may be allowed subject to the following standards:

- a. There is no other feasible alternative route with less impact on the environment.
- b. The crossing minimizes interruption of downstream movement of wood, ice, and gravel and the movement of all fish and wildlife.
- c. Stream crossings, where necessary, shall only occur as near to the perpendicular with the stream as possible and be limited to the minimum width necessary.
- d. Road bridges and culverts are designed according to the latest versions of the Washington Department of Fish and Wildlife Water Crossing Design Guidelines (Washington Department of Fish and Wildlife) the Anadromous Salmonid Passage Facility Design guidelines (National Marine Fisheries Service).
- e. Trails and associated viewing platforms shall be made of pervious materials.

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4. Utility Facilities. New utility lines and facilities are permitted to cross habitat conservation areas if they comply with the following standards

- a. Avoid fish and wildlife habitat conservation areas to the maximum extent possible.
- b. Cross at an angle greater than 60 degrees to the centerline of the channel in streams or perpendicular to the channel centerline whenever boring under the channel is not feasible.
- c. Crossings are contained within the footprint of an existing road or utility crossing where possible.
- d. Avoid paralleling the stream or following a down-valley course near the channel.
- e. Do not increase or decrease the natural rate of shore migration or channel migration.
- f. Bore beneath the scour depth and hyporheic zone of the water body and channel migration zone (CMZ) where feasible.

5. Public Flood Protection Measures. New public flood protection measures and expansion of existing facilities may be approved, subject to the department's review and approval of a habitat management plan.

6. Instream Structures. New instream structures (e.g., such as, but not limited to, high flow bypass, sediment ponds, instream ponds, retention and detention facilities, dams, weirs, etc.) shall be allowed only as part of an approved mitigation or restoration project or watershed basin plan approved by the department and upon acquisition of any required state or federal permits. The structure shall be designed to avoid modifying flows and water quality in ways that may adversely affect critical fish species. Proposals for placement of water quality, water quantity, or other instruments or structures within a stream to gather data, or as a mitigation measure, shall be exempt from the provisions of this title upon review and approval by the department.

7. Stormwater Conveyance Facilities. Conveyance structures whose sole purpose is to convey stormwater already treated for quality, or water bypassed around water quality treatment facilities pursuant to an approved stormwater plan, may be constructed subject to the following standards:

- a. No other feasible alternatives with less impact exist;
- b. Mitigation for impacts is provided;
- c. Stormwater conveyance facilities shall incorporate fish habitat features;
- d. Vegetation shall be maintained and, if necessary, added adjacent to all open channels and ponds in order to retard erosion, filter out sediments, and shade the water.

8. On-Site Sewage Systems and Wells.

- a. New on-site sewage systems and individual wells are permitted if accessory to an approved structure.
- b. Repairs to failing on-site sewage systems associated with an existing structure shall be accomplished by utilizing one of the following methods that result in the least impact:
 - i. Connection to an available public sewer system;
 - ii. Replacement with a new on-site sewage system located in a portion of the site that has already been disturbed by development and is located landward as far as possible, provided the proposed sewage system is in compliance with the provisions in Chapter 14.70 EMC; or
 - iii. Repair to the existing on-site septic system.

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B. The activities listed below are allowed in habitat conservation areas and their buffers, and do not require submission of a habitat management plan, except where such activities would result in a loss of the functions and values of habitat conservation areas or buffers.

1. Vegetation Removal, Disturbance, and Introduction. Limited vegetation removal shall be allowed subject to EMC 18.90.180 (tree preservation) and the following standards:

a. Hazard trees may be cut; provided, that:

- i. The applicant submits a report from a certified arborist, licensed architect, or professional forester that documents the hazard and provides a replanting schedule for the replacement trees and receives written approval from the city authorizing the tree removal;
- ii. Tree cutting shall be limited to limbing and crown thinning, unless otherwise justified by the landowner's expert. Where limbing or crown thinning is not sufficient to address the hazard, trees should be topped to remove the hazard rather than cut at or near the base of the tree. All vegetation cuttings (tree stems, branches, tops, etc.) shall be left within the habitat area or buffer unless removal is warranted due to the potential for disease transmittal to other healthy vegetation;
- iii. The landowner shall replace any trees that are felled or topped with new trees at a ratio of two replacement trees for each tree felled or topped. Tree species that are native and indigenous to the site shall be used;
- iv. Hazard trees determined to pose an imminent threat or danger to public health or safety, or to public or private property, or serious environmental degradation may be removed or topped by the landowner prior to receiving written approval from the department; provided, that within 14 days following such action, the landowner shall submit the necessary report and replanting schedule demonstrating compliance with subsections (B)(1)(a)(i) through (iii) of this section.

b. Trimming of vegetation for purposes of providing view corridors will be allowed; provided, that trimming shall be limited to view corridors of 20 feet in width or less, that no more than 30 percent of the live crown is removed, and that benefits to fish and wildlife habitat are not reduced. Trimming shall be limited to hand pruning of branches and vegetation. Trimming shall not include felling, topping, or removal of trees.

2. Fencing. Fencing shall be placed in such a manner as to maintain wildlife movement corridors and not create any fish passage blockages. The department shall approve the location, type, and height of any proposed fencing.

14.40.050 Alteration of Watercourses

Alteration of Watercourses. Any alteration of a watercourse shall comply with the following standards:

1. The city will notify adjacent communities and the Washington State Department of Ecology prior to any alteration or relocation of a watercourse proposed by the applicant and submit evidence of such notification to the Federal Insurance Administration.
2. The city shall require that maintenance be provided within the altered or relocated portion of said watercourse, so that the flood-carrying capacity is not diminished. Therefore, if the maintenance program calls for future cutting of planted native vegetation used in performing the alteration, the system shall be oversized at the time of construction to compensate for said vegetation growth or any other natural factor that may need future maintenance.
3. Alterations and relocations, including stabilization projects, shall not degrade fish habitat and shall be subject to the following provisions:
 - a. Structures that cross all watercourses and water bodies shall meet fish habitat requirements of the Washington Department of Fish and Wildlife.

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b. Any culverts that are used on fish-bearing watercourses shall be arch/bottomless culverts or equivalent that provide comparable fish protection, and must meet fish habitat requirements of the latest edition of Washington Department of Fish and Wildlife's Design Manual for Culverts.

c. Bridges or other crossings shall allow for uninterrupted downstream movement of wood and gravel, be as close to perpendicular to the watercourse as possible, and be designed to minimize fill and to pass the base flood flows.

d. Watercourse alterations shall maintain natural meander patterns, channel complexity, and floodplain connectivity. Where feasible, such characteristics shall be restored as part of the watercourse alteration.

e. The applicant shall identify the channel migration zone for the watercourse at the project site and for a reasonable reach upstream and downstream of the site, and shall not undertake actions as part of the alteration that would in any way inhibit movement of the channel.

f. Existing culverts that do not meet fish habitat requirements shall be removed or replaced as part of the approved watercourse alteration project.

g. Watercourse alteration projects shall not result in a fish blockage of side channels. Known fish barriers into side channels shall be removed as part of the approved watercourse alteration project.

h. For any watercourse alteration of a Type S or F water (pursuant to EMC 14.40.020(D)) whose channel is subject to migration, bioengineered (soft) armoring of streambanks is required to allow for woody debris recruitment, gravels for spawning, and creation of side channels. The bioengineering technique used must be designed in accordance with the latest edition of Washington Department of Fish and Wildlife's Integrated Streambank Protection Guidelines.

4. The project engineer shall design the watercourse alteration so the activity does not increase the water surface elevation (zero-rise); decrease the capacity, storage, and conveyance of the watercourse; or cause an adverse impact to adjacent, cross-channel, or upstream or downstream properties. (Ord. 17-492 § 2 (Exh. A); Ord. 02-200 § 2).

14.40.060 Mitigation requirements.

A. Mitigation. Compensatory mitigation is required for all unavoidable alterations to fish and wildlife habitat conservation areas or their buffers. Mitigation of alteration to habitat areas shall achieve equivalent or greater biological functions. Mitigation shall address each functional attribute affected by the alteration to achieve functional equivalency or improvement on a per function basis. Mitigation elements to be addressed may include, but are not limited to: restoration of previously degraded areas and key habitat features, restoration of riparian vegetation communities to provide shade and large woody debris, addition of large woody debris, and installation of upland habitat features. All projects must first demonstrate compliance with EMC 14.10.080(B) (Mitigation Sequencing) prior to development of compensatory mitigation plans.

B. Type of mitigation required. In determining the extent and type of mitigation required, the department may consider all of the following:

1. The ecological processes that affect and influence habitat structure and function within the watershed or sub-basin;
2. The individual and cumulative effects of the action upon the functions of the critical area and associated watershed;
3. Observed or predicted trends regarding the gains or losses of specific habitats or species in the watershed, in light of natural and human processes;
4. The likely success of the proposed mitigation measures;
5. Effects of the mitigation actions on neighboring properties; and

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CONSERVATION AREAS~~

6. Opportunities to implement restoration actions formally identified by an adopted shoreline restoration plan, watershed planning document prepared and adopted pursuant to Chapter 90.82 RCW, a salmonid recovery plan or project that has been identified on the Salmon Recovery Board Habitat Project List or by the Washington State Department of Fish and Wildlife as essential for fish and wildlife habitat enhancement.

C. Location. Compensatory mitigation shall be provided on-site or off-site in the location that will provide the greatest ecological benefit to the species and/or habitats affected and have the greatest likelihood of success. Mitigation shall occur as close to the impact site as possible, within the same sub-basin, and in a similar habitat type as the permitted alteration unless the applicant demonstrates to the satisfaction of the department through a watershed- or landscape-based analysis that mitigation within an alternative sub-basin of the same watershed would have greater ecological benefit.

D. Mitigation plans. When required by this chapter, the applicant shall submit a fish and wildlife habitat conservation area mitigation plan meeting the requirements of EMC 14.40.060.

14.40.070. Appendix.

APPENDIX A

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HABITAT MANAGEMENT PLAN

A. A habitat management plan shall, at a minimum, include the following:

1. The general critical areas report requirements in EMC 14.10.082.
2. Identification of any endangered, threatened, sensitive, or candidate species that have a primary association with habitat on the project area;
3. Map showing the location of the ordinary high water mark and/or locations of wildlife habitat conservation area(s) and their buffers in accordance with EMC 14.40.025;
4. The vegetative, faunal, topographic, and hydrologic characteristics of the habitat conservation area;
5. A discussion of any federal, state, or local special management recommendations, including Washington Department of Fish and Wildlife habitat management recommendations, that have been developed for species or habitat located on or adjacent to the project area;
6. A detailed discussion of the direct and/or indirect potential impacts on the habitat conservation area by the project. Such discussion shall include a discussion of the ongoing management practices that will protect habitat after the project site has been developed;
7. The mitigation plan requirements of EMC 14.10.083 if the activity will result in unavoidable impacts to habitat conservation areas. Mitigation measures may include:
 - a. Prohibition or limitation of use and development activities within the habitat conservation area;
 - b. Retention of vegetation and/or re-vegetation of areas/habitats critically important to species;
 - c. Special construction techniques;
 - d. Implementation of erosion and sediment control measures;
 - e. Habitat restoration or enhancement (i.e., fish passage barrier removal);
 - f. Seasonal restrictions on construction activities on the subject property;
 - g. Clustering of development activities on the subject property; and/or
 - h. Any other requirements and/or recommendations from federal, state, or local special management recommendations, including the Washington State Department of Fish and Wildlife's habitat management guidelines.

Chapter 14.50**CRITICAL AQUIFER RECHARGE AREAS**

Sections:

- 14.50.010 Purpose.
- 14.50.020 Critical aquifer recharge area identification.
- 14.50.030 Critical aquifer recharge area review procedures.
- 14.50.040 Critical aquifer recharge area standards.

14.50.010 Purpose.

The purpose of this chapter is to protect critical aquifer recharge areas from degradation or depletion resulting from new or changed land use activities. Due to the exceptional susceptibility and/or vulnerability of groundwater underlying aquifer recharge areas to contamination and the importance of such groundwater as sources of public water supply, it is the intent of this chapter to safeguard groundwater resources and wellhead protection areas by mitigating or precluding future discharges of contaminants from new land use activities. (Ord. 02-200 § 2).

14.50.020 Critical aquifer recharge area identification.

A. General. Critical aquifer recharge areas are areas that have a critical recharging effect on groundwater used for potable water supplies and/or that demonstrate a high level of susceptibility or vulnerability to groundwater contamination from land use activities. These areas include the following:

1. Aquifer Recharge Areas. The boundaries of the two highest DRASTIC zones that are rated 180 and above on the DRASTIC index range, as identified in Map of Groundwater Pollution Potential, Edgewood, Washington, National Water Well Association, U.S. Environmental Protection Agency;
2. Wellhead Protection Areas. Wellhead protection areas that lie within the 10-year time of travel zone boundary of a group A public water system well, as delineated by the water system purveyor or its designee, pursuant to WAC 246-290-135; and
3. Sole Source Aquifers. Sole source aquifers are areas that have been designated by the U.S. Environmental Protection Agency pursuant to the Federal Safe Water Drinking Act. As of the effective date of this title, there are no designated sole source aquifers within city limits.

14.50.030 Critical aquifer recharge area review procedures.

A. General Requirements

1. The city's critical aquifer recharge area map provides an indication of where critical aquifer recharge areas are located within the city and the map is updated as necessary.
2. Any proposed development located within protection critical aquifer recharge area shall comply with the standards set forth in EMC 14.50.040.
3. Any hazardous uses, as defined in EMC 14.50.040, shall require the submittal of a hydrogeologic assessment, as set forth in subsection (B) of this section.
4. The department may waive some of the critical area protective measure provisions contained in EMC 14.10.080, as deemed appropriate by the Department Director and can be shown to meet the requirements associated with Best Available Science, if required.

B. Hydrogeologic Assessment.

1. The hydrogeologic assessment shall be prepared, signed, and dated by a state licensed geologist/hydrogeologist.

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2. The hydrogeologic assessment shall be submitted in the form of a report detailing the subsurface conditions, the design of a proposed land use action, and the facilities operation which indicates the susceptibility and potential for contamination of groundwater supplies. The hydrogeologic assessment shall, at a minimum, include the general critical area report requirements of EMC 14.10.082 in addition to the following:

- a. Information sources;
- b. Geologic setting – includes well logs or borings used to identify information;
- c. Background water quality;
- d. Groundwater elevations;
- e. Location/depth to perched water tables;
- f. Recharge potential of facility site (permeability/transmissivity);
- g. Groundwater flow direction and gradient;
- h. Current available data on wells located within one-quarter mile of the site;
- i. Current available data on any spring within one-quarter mile of the site;
- j. Surface water location and recharge potential;
- k. Water source supply to facility (e.g., high capacity well);
- l. Any sampling schedules necessary;
- m. Discussion of the effects of the proposed project on the groundwater resource;
- n. Discussion of potential mitigation measures, should it be determined that the proposed project will have an adverse impact on groundwater resources; and
- o. Any other information as required by the TPCD, including information required under Washington Department of Ecology Publication 97-30.

C. Storage Tank Permits. In addition to the requirements set forth in this title, the following agencies also have the authority to regulate the installation, repair, replacement, or removal of underground storage tanks:

1. The Pierce County Fire Prevention Bureau regulates and authorizes permits for underground storage tanks, pursuant to the International Fire Code (Article 79) and this chapter.
2. The Washington Department of Ecology regulates and authorizes permits for underground storage tanks (Chapter 173-360 WAC).
3. The TPCD regulates and authorizes permits for the removal of underground storage tanks (Pierce County Code, Chapter 8.34). (Ord. 02-200 § 2).

14.50.040 Critical aquifer recharge area standards.

A. General. All regulated activities that are not exempt or prohibited under the provisions of this chapter shall ensure sufficient groundwater recharge. In order to achieve sufficient groundwater recharge, the applicant shall comply with city's adopted stormwater manual (Chapter 13.05 EMC) and demonstrate that the total post-development infiltration rate for the project area will be equal to or better than the predevelopment rate.

B. Prohibited Uses. Landfills (other than inert and demolition landfills), Class I, III, and IV underground injection wells, metals mining, wood treatment facilities, pesticide manufacturing, petroleum refining facilities (including distilled petroleum facilities), the storage of large volumes of petroleum products, and other uses or activities

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determined by the department to have a significant adverse impact on ground water are prohibited within critical aquifer recharge areas.

C. Exemptions. In addition to the general exemptions listed in EMC 14.20.030, the following uses or activities are exempt from the requirements of this chapter:

1. Sewer lines and appurtenances;
2. Biosolids and sludge land application sites; provided, that these activities comply with the requirements established in Chapters 173-200, 173-216, and 173-304 WAC; and
3. Single-family and two-family dwellings and associated accessory structures.

D. Agricultural Activities. New agricultural activities that do not involve hazardous substance handling or application are allowed within an aquifer recharge or wellhead protection area subject to the following:

1. The applicant is required to submit a farm management plan prepared by the USDA, NRCS, Pierce County Conservation District, or Washington State University, Cooperative Extension Office, that certifies that water quality and quantity within the aquifer recharge area is maintained. The farm management plan shall at a minimum address the following:
 - a. The limits of the proposed agricultural activities.
 - b. The proposed scope of agricultural activities, including the use of any pesticides, fertilizers, or other chemicals.
 - c. The existing nitrate levels on the site and any proposed increases in nitrate levels.
2. Integrated pest management (IPM) practices for pest control and best management practices (BMPs) for the use of fertilizers, as described by the Washington State University, Pierce County Cooperative Extension Office, shall be utilized.
3. Nitrate levels at down-gradient property line shall not exceed 2.5 mg/L or, if the background nitrate concentration exceeds 2.5 mg/L, that the concentration will not be increased more than 0.1 mg/L.
4. Additional protective measures may be required if deemed necessary by the department or TPCPD to protect public health or safety.

~~ED.~~ Nonhazardous Uses. Subdivision of land as defined in EMC Title 16, residential structures housing three or more units and all commercial and industrial sites or activities that do not include or involve hazardous substance processing or handling in protection critical aquifer recharge area are allowed subject to the following standards:

1. Stormwater quality treatment and flow control shall be provided in conformance with the city's adopted stormwater management manual.
2. Floor drains shall not be allowed to drain to the stormwater system and must be designed and installed to meet the Uniform Plumbing Code (UPC) Section 303.
3. If any roof venting carries contaminants, then the portion of the roof draining from this area must go through pretreatment pursuant to UPC Section 304(b).
4. All nonresidential vehicle washing must be self-contained or be discharged to a sanitary sewer system, if approved by the sewer utility, and is subject to UPC Sections 708 and 711.
5. Integrated pest management (IPM) practices for pest control and best management practices (BMPs) for the use of fertilizers as described by the Washington State University, Pierce County Cooperative Extension Office, shall be utilized.

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6. For new or changes in regulated activities served by on-site sewage systems, the applicant must demonstrate to the TPCHD that nitrate levels at the down-gradient property line will not exceed 2.5 mg/L or that if the background nitrate concentration exceeds 2.5 mg/L the concentration will not be increased more than 0.1 mg/L.

7. Additional protective measures may be required if deemed necessary by the department or TPCHD to protect public health or safety.

FE. Hazardous Uses – General. Hazardous substance processing or handling, hazardous waste treatment and storage facilities, animal containment areas, and solid waste facilities that require a solid waste handling permit from the TPCHD, requiring approval from the city, shall be allowed only in protection critical aquifer recharge area subject to review and approval of a hydrogeologic assessment by the department and review by the TPCHD. The department has the authority to apply whatever standards deemed necessary to mitigate any negative impacts that may be associated with the proposed development and will consider comments by TPCHD.

GF. Hazardous Uses – Storage Tanks. In addition to the requirement to submit a hydrogeologic assessment, the following standards apply to storage tanks in protection critical aquifer recharge area:

1. Underground Tanks. All new underground storage facilities used or to be used for the underground storage of hazardous substances or hazardous wastes shall be designed and constructed so as to:

- a. Prevent releases due to corrosion or structural failure for the operational life of the tank;
- b. Be protected against corrosion, constructed of noncorrosive material, steel clad with a noncorrosive material, or designed to include a secondary containment system to prevent the release or threatened release of any stored substance;
- c. Use material in the construction or lining of the tank which is compatible with the substance to be stored; and
- d. The installation of underground storage tanks shall also be subject to other state and local permit requirements.

2. Aboveground Tanks.

- a. No new aboveground storage facility or part thereof shall be fabricated, constructed, installed, used, or maintained in any manner which may allow the release of a hazardous substance to the ground, groundwater, or surface waters of the city within a critical aquifer recharge area.
- b. A new aboveground tank that will contain a hazardous substance will require both a double-walled tank and a secondary containment system separate from the tank that will hold 110 percent of the tank's capacity. The secondary containment system or dike system must be designed and constructed to contain material stored in the tank(s). (Ord. 16-482 § 2 (Exh. C); Ord. 02-200 § 2).

Chapter 14.60**VOLCANIC HAZARD AREAS**

Sections:

- 14.60.010 Purpose.
- 14.60.020 Volcanic hazard areas.
- 14.60.030 Volcanic hazard area review procedures.
- 14.60.040 Volcanic hazard area standards.

14.60.010 Purpose.

At over 14,411 feet high, Mount Rainier dominates the skyline of the southern Puget Sound region. This glacier-clad mountain is a dormant volcano capable of generating large floods and lahars which have historically reached the floors of the lowlands south of the city of Seattle and out to Commencement Bay in the Port of Tacoma, spewing ash from pyroclastic eruptions. The purpose of this chapter is to promote the public health, safety, and general welfare of the citizens of Edgewood by providing standards that minimize the loss of life that may occur as a result of volcanic events emanating from Mount Rainier. (Ord. 02-200 § 2).

14.60.020 Volcanic hazard areas.

A. General. Volcanic hazard areas are areas subject to pyroclastic flows, lava flows, and inundation by debris flows, mudflows, or related flooding resulting from geologic and volcanic events on Mount Rainier.

B. Volcanic Hazard Area Categories. Volcanic hazard areas are areas that have been historically inundated by Case I, Case II, or Case III lahars or other types of debris flow; affected by pyroclastic flows, pyroclastic surges, lava flows, or ballistic projectiles in future eruptions; or are located in other drainages expected to be inundated by a future Case I, Case II, or Case III debris flow. Volcanic hazard areas are classified into the following categories:

1. Inundation Zone for Case I Lahars. Areas that could be affected by cohesive lahars that originate as enormous avalanches of weak chemically altered rock from the volcano. Case I lahars can occur with or without eruptive activity. The average recurrence rate for Case I lahars on Mount Rainier is about 500 to 1,000 years.
2. Inundation Zone for Case II Lahars. Areas that could be affected by relatively large non-cohesive lahars, which most commonly are caused by the melting of snow and glacier ice by hot rock fragments during an eruption, but which can also have a non-eruptive origin. The average time interval between Case II lahars from Mount Rainier is near the lower end of the 100- to 500-year range, making these flows analogous to the so-called "100-year flood" commonly considered in engineering practice.
3. Inundation Zone for Case III Lahars. Areas that could be affected by moderately large debris avalanches or small non-cohesive lahars, glacial outburst floods, or other types of debris flow, all of non-eruptive origin. The average time interval between Case III lahars at Mount Rainier is about one to 100 years.
4. Pyroclastic Flow Hazard Zone. Areas that could be affected by pyroclastic flows, pyroclastic surges, lava flows, and ballistic projectiles in future eruptions. During any single eruption, some drainages may be unaffected by any of these phenomena, while other drainages are affected by some or all phenomena. The average time interval between eruptions of Mount Rainier is about 100 to 1,000 years.

C. Time Travel Zones. The ability to evacuate people from within a volcanic hazard area correlates to the distance from the source of an event (i.e., those areas closest to the event will have less time to evacuate than those areas farther away from the source of an event). The amount of time that is anticipated for a debris flow, lahar, flood, or avalanche to travel geographically has been classified into the following time travel zones:

1. Time Zone A. Time Zone A is an estimated one-hour travel distance from the source of the event.
2. Time Zone B. Time Zone B is an estimated one and one-half hour travel distance from the source of the event.

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3. Time Zone C. Time Zone C is an estimated two-hour travel distance from the source of the event.

4. Time Zone D. Time Zone D is an estimated two hours or greater travel distance from the source of the event. (Ord. 02-200 § 2).

14.60.030 Volcanic hazard area review procedures.

A. The City's Critical Areas Atlas – Volcanic Hazard Area Map provides an indication of where volcanic hazard areas are located within the city.

B. The department will complete a review of the volcanic hazard area maps for any development proposal to determine whether the proposed project area for a regulated activity falls within a volcanic hazard area.

C. When the department's maps or sources indicate that the proposed project area for a regulated activity is located within a volcanic hazard area, the department shall apply the standards for regulated activities in volcanic hazard areas, as set forth in EMC 14.60.040.

14.60.040 Volcanic hazard area standards.

The following standards apply within the inundation zones for Case I, II, and III lahars and within the pyroclastic flow hazard zone (refer to Table 14.60.040):

A. Bonus densities, as set forth in EMC 18.90.080, Housing incentives program, shall be prohibited.

B. All critical facilities, as defined in Chapter 14.15 EMC, shall be prohibited, except sewer collection facilities and any other utilities that are located underground or not likely to cause harm to people or the environment if inundated by a lahar.

C. Special occupancy structures, as defined in Chapter 14.15 EMC, are subject to the following:

1. Time Travel Zone A. Special occupancy structures located within the Time Travel Zone A area shall be limited to a maximum 100-person occupancy.
2. Time Travel Zone B. Special occupancy structures located within the Time Travel Zone B area shall be limited to a maximum 500-person occupancy.
3. Time Travel Zone C. Special occupancy structures located within the Time Travel Zone C area shall be limited to a maximum 1,000-person occupancy.
4. Time Travel Zone D. Special occupancy structures located within the Time Travel Zone D area shall be limited to a maximum 5,000-person occupancy.

Table 14.60.040 Volcanic Hazard Area Standards

Facility/Occupancy List	Case I Lahar Inundation Zone	Case II Lahar Inundation Zone	Case III Lahar Inundation Zone	Pyroclastic Flow Hazard Zone
Bonus Densities ⁽¹⁾	Not Allowed	Not Allowed	Not Allowed	Not Allowed
Critical Facilities ⁽²⁾	Not Allowed	Not Allowed	Not Allowed	Not Allowed
Special Occupancies ⁽³⁾	In Time Travel Zone A – Limited to 100 person occupant load. In Time Travel Zone B – Limited to 500 person occupant load. In Time Travel Zone C – Limited to 1,000 person occupant load. In Time Travel Zone D – Limited to 5,000 person occupant load.			
Other Occupancies	No Limitation	No Limitation	No Limitation	No Limitation

~~Chapter 14.60 VOLCANIC HAZARD AREAS~~

- (1) Bonus density as set forth in EMC 18.90.080, Housing incentives program.
 - (2) Essential facility as defined in EMC Chapter 14.15 EMC.
 - (3) Special occupancy structures as defined in Chapter 14.15 EMC
- (Ord. 02-200 § 2).

Chapter 14.70
FLOOD HAZARD AREAS

Sections:

- 14.70.010 Purpose.
- 14.70.015 Flood Insurance Study Adoption
- 14.70.020 Flood hazard areas.
- 14.70.030 Flood hazard area review procedures.
- 14.70.040 Flood hazard area standards.
- 14.70.050 Appendices.

14.70.010 Purpose.

The purpose of this chapter is to promote the public health, safety, and general welfare of the citizens of Edgewood. The standards contained in this chapter are intended to minimize public and private losses due to flood conditions in flood hazard areas and provide special criteria necessary for regulated activities located within flood hazard areas of the city. The following statements describe the purpose of this chapter:

- A. Protect human life and health;
- B. Minimize expenditure of public money and costly flood control projects;
- C. Minimize the need for rescue and relief efforts associated with flooding;
- D. Minimize prolonged business interruptions;
- E. Minimize damage to public infrastructure, facilities and utilities;
- F. Minimize damage to critical fish and wildlife habitat areas;
- G. Minimize net loss of ecological functions of floodplains;
- H. Ensure that potential buyers are notified that property is in a flood hazard area;
- I. Ensure that those who occupy flood hazard areas assume responsibility for their actions; and
- J. Qualify Edgewood for participation in the National Flood Insurance Program, thereby giving the citizens of Edgewood the opportunity to purchase flood insurance with particular emphasis to those in flood hazard areas. (Ord. 02-200 § 2).

14.70.015 Flood Insurance Study Adoption

The areas of special flood hazard identified by the Federal Insurance Administration in a scientific and engineering report entitled "The Flood Insurance Study for Pierce County, Washington and Incorporated Areas" dated March 7, 2017, with accompanying FIRMs and any map amendments or corrections are hereby adopted by reference and declared to be a part of this title. The Flood Insurance Study and FIRMs are on file at Edgewood City Hall, 2224 104th Avenue East, Edgewood, Washington, 98371. The city may add or delete land from areas of special flood hazard or revise base flood elevations, utilizing best-available information for flood hazard identification in accordance with federal regulations.

14.70.020 Flood hazard areas.

Edgewood regulates the following flood hazard areas:

A. Potential Flood Hazard Areas.

- 1. Potential flood hazard areas, as depicted on the Critical Areas Atlas – Flood Hazard Area Map, include:

Chapter 14.70 FLOOD HAZARD AREAS**a. Detailed Study Areas.**

i. FEMA Flood Insurance Rate Map and Floodway Map AE and AH zones.

ii. Areas within 300 feet horizontal distance from the base flood elevation established for the mapped AE and AH zones.

iii. Areas within five feet of vertical height from the base flood elevation established for the mapped AE and AH zones.

b. Unstudied Areas. FEMA Flood Insurance Rate Map A zones and shaded X zones, and areas within 300 feet horizontal distance from said mapped areas.

c. Natural Waters/Watercourse. Areas within five feet of vertical height above the ordinary high water mark of an identified natural watercourse.

d. Groundwater Flooding Areas. Areas within 300 feet horizontal distance from a mapped groundwater flooding area.

e. Potholes. Areas not identified as a mapped flood hazard area as described above, but within 10 feet of vertical relief from the bottom of an identified pothole or within two feet of vertical relief of a potential surface water spillway or other type of outlet. Potholes may be identified by city topographic mapping, field survey, or site inspections.

f. Channel Migration Zones (CMZs). Channel migration zones shall apply only to those watercourses specifically identified by the city or listed in subsection (B)(4) of this section. In those areas where detailed CMZ studies have been completed and accepted by the department, additional horizontal and vertical review threshold criteria (i.e., 300 feet horizontal and five feet vertical) shall not apply.

2. The Critical Areas Atlas – Flood Hazard Areas Map may not show all potential flood hazard areas that may be necessary for a specific site analysis. The department may make interpretations, where needed, as to the approximate location of the boundaries of potential flood hazard areas. When there is a conflict between the elevations and the mapped potential flood hazard area boundaries, the elevations shall govern.

3. Where there is insufficient information shown on the potential flood hazard area maps, the department may require the applicant to verify that the site is out of the flood hazard area using the flood hazard area review procedures set forth in EMC 14.70.030.

B. Floodway. A floodway is an extremely hazardous area due to the depth and/or velocity of floodwaters, which carry debris, potential projectiles, and have erosion potential. The following areas are regulated by the city as floodways:

1. Regulatory Floodway. Regulatory floodway designated by flood hazard area maps.

2. Deep and/or Fast Flowing Water Areas. Areas of deep and/or fast flowing water shall be regulated as a floodway. Based on the criteria set forth in EMC 14.70.030(E), the department shall make the determination after review and approval of applicant's analysis of whether the project site falls within the floodway area based on deep and/or fast flowing waters.

3. Potholes and Shaded X Zones. That portion of a pothole ~~and—zone~~ and zone area that is three feet or greater in depth shall be regulated as a floodway.

4. Channel Migration Zones (CMZs).

a. Channel migration zones shall be regulated as a floodway.

b. Channel migration zones are equivalent to the base flood elevation limits (i.e., 100-year floodplain limits).

Chapter 14.70 FLOOD HAZARD AREAS

C. Flood Fringe. All areas subject to inundation by the base flood, but outside the limits of the floodway as set forth in subsection (B) of this section. Those portions of the A, AE, AH, and shaded X zones not defined as floodway, and that portion of a pothole and FEMA shaded X zone area that is between zero feet (base flood elevation) and three feet in depth shall be regulated as a flood fringe.

D. Other Areas of Special Flood Hazard.

1. Groundwater Flooding Areas. Groundwater flooding areas are those areas identified by Edgewood and shown on flood hazard maps and are subject to flood inundation from subsurface waters that result from a fluctuation of the groundwater table. Groundwater flooding areas shall be regulated as a floodway or flood fringe pothole.

2. Natural Waters/Watercourse. Natural waters/watercourse as identified on city topographic, planimetric or orthophoto maps, WDNR stream classification maps, USGS quadrangle maps, or other source maps that are not identified as a flood hazard area on the FEMA maps. That portion of the natural watercourse located between the ordinary high water mark and a topographic elevation five feet above the ordinary high water mark shall be regulated as a floodway or flood fringe. If the applicant chooses to accept the five-foot topographic elevation line above the ordinary high water mark as the base flood elevation (i.e., floodplain elevation limits), a flood study shall not be required for a natural water/watercourse.

3. Frequently Flooded Areas. See EMC 14.70.030(A)(9) as the areas defined by this section. (Ord. 17-492 § 2 (Exh. A); Ord. 02-200 § 2).

14.70.030 Flood hazard area review procedures.

A. General Requirements.

1. The city's Critical Areas ~~MapAtlas~~ – Flood Hazard Area Map provides an indication of where potential flood hazard areas are located within the city. The actual presence or location of a flood hazard area shall be determined using the procedures and criteria contained in this chapter.

2. The department will complete a review of the flood hazard area maps, and other source documents, for any development proposal to determine whether the proposed project area for a regulated activity falls within a potential flood hazard area. When there is a conflict between the elevations and the mapped 100- or 500-year floodplain or floodway boundaries, the elevations shall govern. In the instance where base flood elevation data has not been provided within a mapped A zone, the department shall obtain, review, and reasonably utilize any base flood elevation and floodway data available from a federal, state, or other source to complete their review.

3. When the department's maps or sources indicate that the proposed project area for a regulated activity is or may be located within a potential flood hazard area (except for coastal flood hazard areas), the department shall require a flood boundary verification survey as outlined in subsection (C) of this section, and may require a flood study as outlined in subsection (D) of this section, a deep and/or fast flowing water analysis as outlined in subsection (E) of this section, and/or a zero-rise analysis as outlined in subsection (F) of this section.

4. Any proposed development located within a flood hazard area shall comply with the flood hazard area standards set forth in EMC 14.70.040.

5. Prior to approval of any proposed flood hazard area development, all necessary permits from those governmental agencies from which prior approval is required by federal or state law, including but not limited to Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334, must be provided to the city by the applicant.

6. A FEMA letter of map amendment (LOMA) or letter of map revision (LOMR) shall not be submitted to FEMA until review and approval has been granted by the department. The city shall not recognize any LOMA or LOMR as an amendment to the department's flood hazard maps unless the department has granted prior approval.

~~Chapter 14.70 FLOOD HAZARD AREAS~~

7. Unless otherwise stated in this chapter, the critical area protective measure provisions contained in EMC 14.10.080 shall apply.

8. The Federal Emergency Management Agency (FEMA) administers the nation's floodplain management program. FEMA has identified some of the flood prone areas in the city; however, it is generally recognized that FEMA's Flood Insurance Rate Maps (FIRMs) may not accurately reflect the degree or frequency of flooding within all areas of the city. Therefore, information available through FEMA may not meet best available science criteria and cannot be used exclusively to address frequently flooded areas.

9. The city has determined that the following documents and sources are the most current and accurate information concerning frequently flooded areas within the city, and therefore represent best available science:

- a. The city's Surface Water Management Plan, 1997, or as amended thereafter.
- b. Aerial photographs of the city, especially those taken in wintertime 1996 and 1997.
- c. The city's two-foot elevation contour mapping performed by Nies Mapping Group, Inc., 1999, or as subsequently updated.
- d. Relevant and verifiable information from the city's Capacity Analysis Technical Review ~~AdHoc~~Adhoc Committee draft report, 2000.
- e. Relevant and verifiable government and citizen photographs, notes, observations, etc., regarding historic ponding/flooding levels, including but not limited to the City of Edgewood Potholes Water Level Monitoring 2006-2007 report prepared by Robinson Engineers, LLC.
- f. Relevant and verifiable information available through Pierce County.
- g. Relevant and verifiable information available through FEMA.

10. Flooding conditions within the city generally fall into three distinct hydrologic settings: (a) upland areas within enclosed depressions, (b) streams that flow off the upland areas, and (c) valley lowlands. Accordingly, the city manages frequently flooded areas within these three zones, as described below:

- a. Upland Areas Within Enclosed Depressions. From the above list use the historic ponding elevation, determined by subsection (A)(9) of this section, or the FEMA 100-year base flood elevation, whichever is highest.
- b. Streams Which Flow Off the Upland Areas. From the above list use the historic flood elevation, determined by subsection (A)(9) of this section, or the FEMA 100-year base flood elevation, whichever is highest.
- c. Valley Lowlands. From the above list use the historic flood elevation determined by subsection (A)(9) of this section, or the FEMA 100-year base flood elevation, whichever is highest.

11. The city will provide local flood information to FEMA, and request FEMA's assistance in accurately mapping and evaluating frequently flooded areas.

12. Warning and Disclaimer of Liability. The degree of flood protection required by this chapter is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by manmade or natural causes. This chapter does not imply that land outside frequently flooded areas or uses permitted within such areas will be free from flooding or flood damages. This chapter shall not create liability on the part of city, any officer or employee thereof, or the Federal Insurance Administration, for any flood damages that result from reliance on this chapter or any administrative decision lawfully made hereunder.

B. Channel Migration Zone Study.

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1. In areas where Edgewood has not conducted a detailed channel migration zone study, an applicant may submit an independent channel migration zone study to demonstrate that the channel migration zone limits for those watercourses listed in EMC 14.70.020(B)(4) are located inside the 100-year floodplain limits.
2. The channel migration zone study shall be prepared, signed, and dated by a professional engineer or professional geologist with at least five years of experience in fluvial geomorphology, river dynamics, or geotechnical engineering.
3. The channel migration zone study shall, at a minimum, contain the information set forth in EMC 14.70.050, Appendix B.
4. The department shall review the channel migration zone study and either accept the new channel migration zone limits or reject the study and require the use of the 100-year floodplain limits. Once the department has reviewed and approved the channel migration zone study, the applicant shall be required to provide a flood boundary verification survey, as outlined in subsection (C) of this section, utilizing the newly established channel migration zone limits as the floodway limits.

C. Flood Boundary Verification Survey.

1. A flood boundary verification survey that delineates the horizontal and vertical limits of the base flood elevation shall be submitted to the department when the department's maps or sources indicate that the proposed project area for a regulated activity is located within a potential flood hazard area.
 - a. Where a base flood elevation has not been determined, a flood study shall be required pursuant to subsection (D) of this section.
 - b. A base flood elevation that has been established through a detailed flood study accepted by the department may be used in lieu of conducting a flood study.
 - c. The base flood elevation for a natural watercourse as set forth in EMC 14.70.020(D)(2) shall be established at the five-foot topographic elevation line above the ordinary high water mark.
2. The requirement to submit a flood boundary verification survey may be waived at the department's discretion, when the department can determine, using contour elevations, base flood data, orthophotos, and parcel data, that the extent of the regulated activity is clearly above the base flood elevation.
3. The flood boundary verification survey shall be prepared, signed, and dated by a registered land surveyor.
4. The department shall review the flood boundary verification survey to determine if the proposed development is located within a flood hazard area.
5. If the proposed development lies within the flood hazard area, the limits of the floodway, as well as the base flood elevation, shall be shown on the flood boundary verification survey.

D. Flood Study.

1. A flood study shall be conducted when the department's maps or sources indicate that the proposed project area for a regulated activity is, or may be located within, a potential flood hazard area where base flood elevation data is not available through the flood insurance study or other authoritative sources, or when an established base flood elevation is contested. A full engineering analysis to determine the base flood elevation shall be required by the department. Base flood elevations shall be determined using the detailed methods established in EMC 14.70.050, Appendix A. The department may approve alternative methods.
2. The flood study shall be prepared, signed, and dated by a professional engineer.
3. Once the department has reviewed and approved the flood study, the applicant shall be required to provide a flood boundary verification survey, utilizing the newly established base flood elevation, as outlined in subsection (C) of this section.

4. Flood studies shall not be required for coastal flood hazard areas.

E. Deep and/or Fast Flowing Water Analysis.

1. When the department determines that a proposed project area for a regulated activity is located within a flood hazard area, a deep and/or fast flowing water analysis based on EMC 14.70.050, Appendix A, shall be required to determine the floodway limits.
2. The floodway limits and flood fringe limits identified in the deep and/or fast flowing water analysis shall be depicted on the flood boundary verification survey, as outlined in subsection (C) of this section.
3. The deep and/or fast flowing water analysis shall be prepared, signed, and dated by a professional engineer.
4. Deep and/or fast flowing water analysis shall not be required for coastal flood hazard areas.

F. Zero-Rise Analysis.

1. When the department determines that a proposed project area for a regulated activity is located within a flood hazard area, a zero-rise analysis shall be required to determine that no increase in base flood elevation, displacement of flood volume, or flow conveyance reduction will occur as a result of the development.
2. The zero-rise analysis shall be conducted utilizing HEC-RAS (Hydrologic Engineering Center – River Analysis System) modeling methodology (for stream/channel floodways), the Western Washington Hydrology Model (i.e., WWHM, for pothole/closed depression floodways), or by other alternative methodologies approved by the city (see EMC 14.70.050, Appendix A). HEC-RAS can be found at the following website: <http://www.hec.usace.army.mil/software/hecras/>. WWHM can be found here: <http://www.ecy.wa.gov/programs/wq/stormwater/wwhmtraining/index.html>. The analysis shall show that no rise (0.01 foot or less) has occurred as a result of the proposed development. The proposed development may need to be reduced or specially engineered (such as utilizing piers or pilings) to achieve zero-rise.
3. The zero-rise analysis shall be prepared, signed, and dated by a professional engineer.
4. The zero-rise analysis shall be documented on the zero-rise analysis form, as set forth in EMC 14.70.050, Appendix A, and shall be attached to the flood hazard area permit.
5. Zero-rise analysis shall not be required for coastal flood hazard areas.
6. When structures are elevated by pier or pilings and no fill is placed in the flood hazard area, the requirement to submit a zero rise analysis may be waived at the department's discretion. (Ord. 17-492 § 2 (Exh. A); Ord. 02-200 § 2).

14.70.040 Flood hazard area standards.

A. General.

1. New construction done by or for the city, such as bridges, roads, flood control works, revetments, retaining walls, drainage structures, sewer or water lines, parks, or other structures necessary to promote the public's health, safety, and welfare shall be allowed in a flood hazard area when:
 - a. The project is prepared, dated, and stamped by a registered professional engineer in the state of Washington and is designed so the project does not result in any increase in flood levels during the occurrence of the base flood discharge (zero-rise) and shall not obstruct the floodway or cause an adverse impact to critical fish or wildlife habitat or adjacent, cross-channel, or upstream or downstream properties; and
 - b. The improvements utilize appropriate flood hazard protection standards.

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2. Elevation Certificate. A Federal Emergency Management Agency (FEMA) elevation certificate shall be required for new construction, additions affixed to the side of a structure, and substantial improvements located within flood hazard areas. The most current version of the FEMA elevation certificate must be completed and certified by a professional land surveyor, currently licensed in the state of Washington, kept on file by the city for public inspection, recording the actual (as-built) elevation (in relation to mean sea level) of:

- a. The lowest floor (including basement) of all new or substantially improved structures, whether or not the structure contains a basement;
- b. For flood proofed nonresidential structures, where the structure was flood proofed (including flood proofing certifications).

B. Floodways. Any development, encroachments, filling, clearing or grading, new construction, and substantial improvements shall be prohibited within the floodway (including structures that do not require a building permit), except as allowed in the following standards:

1. Agricultural activities that do not require the installation of structures and that do not have any associated fill.
2. Park and recreational uses and facilities that do not require the installation of structures and that do not have any associated fill.
3. Individual recreational vehicles, not located in an RV park, that are licensed and ready for highway use, on wheels or jacking system, and are not permanently attached to the site (attached only by quick disconnect type utilities and security devices, with no permanently attached additions).
4. Habitat enhancement/stream restoration activities are permitted subject to the provisions outlined in subsection (D) of this section.
5. Rehabilitation, reconstruction, or an upper story addition to an existing structure that does not exceed the limits for a substantial improvement.
6. Private bridges may be allowed to cross the floodway; provided, that the structure meets the requirements contained in EMC 14.70.030 and the following:
 - a. The lowest structural member of a private bridge proposed to cross a channel migration zone shall be a minimum of six feet above the base flood elevation.
 - b. The lowest structural member of a private bridge proposed to cross the floodway portion of any other watercourse shall be a minimum of one foot above the base flood elevation.

C. Flood Fringe Areas. All activities allowed in subsection (B) of this section shall be permitted in a flood fringe area. Any other proposed development, encroachments, filling, clearing or grading, new construction, and substantial improvements are prohibited in a flood fringe area except as permitted under the following standards:

1. Structures that do not require a building permit and that do not have any associated fill are allowed, subject to flood hazard area review and permitting.
2. All other regulated activities shall only be allowed when the proposed development is located on an existing lot of record that was created prior to the effective date of the ordinance codified in this chapter. Applicants shall demonstrate there are no other feasible alternatives that would allow the proposed development to occur completely outside the flood hazard area. At a minimum, the following shall be demonstrated:
 - a. The development cannot be located outside the flood hazard area due to topographic constraints of the parcel or size and/or location of the parcel in relation to the limits of the flood hazard area and a building setback variance has been reviewed, analyzed, and rejected as a feasible alternative to encroachment into the flood hazard area; and

- b. The proposed development shall not cause an adverse impact to adjacent, cross-channel, or upstream or downstream properties.

3. Roads, Bridges, Trails, and Parking Lots.

- a. Roads, bridges, driveways, trails, emergency vehicle access, and access routes and easements, where allowed, shall be constructed and armored based on the standards in subsection (C)(4) of this section and elevated a minimum of one foot above the base flood elevation.
- b. Parking lots shall be elevated to a minimum of one-half foot below the base flood elevation.

4. Grading and Filling. When development is permitted under this subsection, it shall be designed to a zero-rise standard as set forth in EMC 14.70.030(F) and 14.70.050, Appendix A. Any filling, grading, or clearing associated with the permitted development shall not increase flood hazards, water velocities, or flood elevations. In addition to meeting the requirements for zero-rise, all permitted development must also meet the following requirements:

- a. Compensatory Storage. New excavated storage volume shall be equivalent to the flood storage capacity eliminated by filling or grading within the flood fringe. Equivalent shall mean that the storage removed shall be replaced by equal live storage volume between corresponding one-foot contour intervals that are hydraulically connected to the floodplain through their entire depth.
- b. Flow Conveyance. New excavated conveyance areas shall be equivalent to existing conveyance within the flood fringe. Equivalent shall mean a mechanism for transporting water from one point to another using an open channel system.
- c. Erosion Protection. Development shall be protected from flow velocities greater than two feet per second through the use of bio-engineering methods or, when bioengineering methods have been deemed insufficient to protect development, then hard armoring may be utilized. All erosion protection shall extend one to three feet, depending on development requirements, above the base flood elevation and shall be covered with topsoil and planted with native vegetation.

5. Critical Facilities.

- a. New construction, additions affixed to the side of an existing structure, and substantial improvement of hazardous facilities, and special occupancy structures are prohibited.
- b. New construction of an essential facility, reconstruction of an existing essential facility, or additions to an existing essential facility that exceed the threshold for substantial improvement shall be permitted when no feasible alternative site is available outside the flood hazard area. Such regulated activities are subject to the following:
 - i. Essential facilities with a crawlspace elevated by fill shall have the lowest floor and any utilities and ductwork elevated a minimum of three feet above base flood elevation, or to the height of the 500-year flood, whichever is higher.
 - ii. Essential facilities elevated by piers or pilings shall have the finished floor and any utilities and ductwork elevated a minimum of three feet above the base flood elevation (or to the height of the 500-year flood, whichever is higher) and must be designed by a professional structural engineer.
 - iii. Access to and from the critical facility shall be protected to the height utilized under subsections (C)(5)(b)(i) and/or (ii) of this section. Access routes shall be elevated to or above the same elevation to the maximum extent possible.
 - iv. Essential facilities shall be armored based on the standards in subsection (C)(4) of this section.
 - v. Flood proofing and sealing measures must be taken to ensure that toxic or explosive substances will not be displaced or released into floodwaters.

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6. Structures. Single-family, two-family, multifamily, mobile/manufactured homes, commercial, industrial, etc., except for critical facilities as set forth in subsection (C)(5) of this section, shall be allowed subject to the following standards:

- a. New construction, additions affixed to the side of an existing structure, and substantial improvement of any structure with a crawlspace shall have the lowest floor elevated a minimum of two feet above base flood elevation.
- b. New construction, additions affixed to the side of an existing structure, and substantial improvement of any structure elevated by piers or pilings shall have the bottom of the lowest horizontal structural member elevated a minimum of two feet above the base flood elevation and must be designed by a professional structural engineer. Electrical, heating, ventilation, plumbing, air-conditioning equipment, and other service facilities and associated ductwork shall be elevated a minimum of two feet above base flood elevation; however, the department may approve a lesser minimum distance above base flood elevation; provided, that the systems are designed to prevent floodwater from entering or accumulating within the components. Areas below the lowest horizontal structural member shall not be enclosed and shall remain free of obstructions.
- c. Mobile/manufactured homes shall be anchored to prevent flotation, collapse, or lateral movement, and shall be installed using methods and practices to minimize flood damage. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This is in addition to applicable state and local anchoring requirements for resisting wind forces.

7. Agricultural Accessory Structures. The lowest floor in an agricultural accessory structure shall be located at the base flood elevation or higher; provided, that the structure be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a professional engineer in the state of Washington or must meet or exceed the following minimum criteria:

- a. A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided;
- b. The bottom of all openings shall be no higher than one foot above grade; and
- c. Openings may be equipped with screens, louvers, or other covering or devices; provided, that they permit the automatic entry and exit of floodwaters.

8. Construction Standards.

- a. Construction of a basement is prohibited.
- b. Crawl spaces shall be backfilled with clean earth material and shall meet International Building Code requirements. Finished grade within the crawlspace shall be at least two feet above the base flood elevation.
- c. Flood proofing in lieu of elevating the structure is prohibited.
- d. All single-family, two-family, multifamily, mobile/manufactured homes, commercial, and industrial structures shall be placed on standard concrete stemwall/footing foundations or piles, piers, or column foundations and engineered pursuant to International Building Code requirements.

9. Sewage Disposal and Potable Water Installation.

- a. New and replacement public water sources (i.e., wells and water supply lines) and public sanitary sewage conveyance systems are allowed. These systems shall be designed to withstand scour resulting from flow velocity, minimize or eliminate infiltration of floodwaters into the systems, and minimize or eliminate discharge from the systems into floodwaters

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b. All replacement wells and replacement on-site sewage system (OSS) shall be designed to minimize or eliminate impairment to them or contamination from/to them during flooding (i.e., infiltration of floodwaters into or discharge out of the systems). They shall not be located in pothole or no-outlet floodplains.

c. All new individual wells and new on-site sewage system (OSS) shall be prohibited. Conveyance systems from a structure to a well or OSS located outside of the flood hazard area shall be allowed provided these systems are designed to meet the standards in subsection (C)(4) of this section.

14.70.050 Appendices.

A. Floodplain/Floodway Analysis.

B. Channel Migration Zone Study.

APPENDIX A**Formatted: Centered****FLOODPLAIN/FLOODWAY ANALYSIS**

This Appendix describes the flood hazard analyses and studies as required by Chapter 14.70 EMC, Flood Hazard Areas. Flood hazard studies establish the base flood elevation and delineate floodplain and/or floodway(s) when a proposed project contains or is adjacent to a river, stream, lake, or closed depression.

Flood hazard studies must conform to FEMA regulations described in Part 65 of 44 Code of Federal Regulations (CFR). In addition, the following information must be provided and procedures performed for flood hazard studies used under Chapter 14.70 EMC to examine development proposals or improvements within a floodplain.

Article I. Floodway Determination

The city recognizes two distinct floodways. The FEMA floodway describes the limit to which encroachment into the natural conveyance channel can cause one foot or less rise in water surface elevation. The deep and/or fast flowing (DFF) water floodways are hazardous areas and conditions of the floodplain for both people and habitable structures. Life safety and protection to improved properties are compromised if encroached upon. Encroachment cannot occur within these areas.

A. FEMA Floodways.

1. FEMA floodways are determined through the procedures outlined in the FEMA publication Guidelines and Specifications for Study Contractors using the one-foot maximum allowable rise criteria.
2. Transitions shall take into account obstructions to flow such as road approach grades, bridges, piers, culverts, or other restrictions. General guidelines for transitions may be found in HEC-RAS, Water Surface Profiles – User's Manual, Appendix IV, Application of HEC-RAS Bridge Routines, published by the Hydrologic Engineering Center, Davis, California.

B. Deep and/or Fast Flowing (DFF) Floodways.

1. DFF floodways are generally assumed to include the entire 100-year floodplain until the department approves a detailed floodway analysis that defines areas of DFF within the entire floodplain area based on the criteria.
2. The hydraulic model must adequately be calibrated to known or recorded stage elevations of past flood events with computed recurrence frequency intervals for the 100-year flood recurrence interval. This is to ensure model accuracy.

Article II. Flood Study Content and Required Information

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Three copies of the completed floodplain/floodway analysis study report and the modeling digital files shall be submitted. The report submittal must be stamped by a licensed professional civil engineer and include the following information in addition to that required for the drainage plan of a proposed project:

A. Floodplain/Floodway Map.

1. A scaled survey base map stamped by a licensed professional land surveyor registered in the state of Washington. The map must accurately locate the proposed development with respect to

the floodplain and floodway, the channel of the subject stream, river, and/or pothole location, and the existing improvements within the subject study area. It must also supply all pertinent information such as the nature of the proposed project, legal description of the property on which the project would be located, fill quantity, limits and elevation, the building floor elevations, and use of compensatory storage.

2. The map must show elevation contours at a minimum of two-foot vertical intervals and shall comply with survey and map guidelines published in the FEMA publication Guidelines and Specifications for Study Contractors. The map must show the following:

- a. Elevations and ground contours, spot elevations, and vertical datum NAVD 88 (North American Vertical Datum of 1988) (or most recent vertical datum accepted by the department).
- b. Elevations and dimensions of existing structures, fill, and compensatory storage areas.
- c. Size, location, elevation and spatial arrangement of all proposed structures on the site.
- d. Location and elevations of roadways, drainage facilities, water supply lines, and sanitary sewer facilities.
- e. Areas of DFF must clearly be shown and plotted on the map sheet depicting the bounded area of the floodway on both sides of the study channel through the subject site. DFF floodway studies must reflect all transitions as referenced above as well.
- f. The base maps must also be accompanied by all field survey notes/computations, drawings, etc., for each cross-section with water surface elevation at the time the cross-section field survey was done.

B. Study Report.

1. Soil maps, groundcover maps, and photographs.
2. A narrative report containing the purpose of the study and description of the study area, data collection, methodology for both the hydrology and hydraulics, detailed discussion on the input parameters used, modeling results, and conclusions.
3. A floodplain/floodway analysis must include calculations and all computer analysis input and output information, supporting graphical illustrations, as well as the following additional information:
 - a. Scaled cross-sections showing the current/existing conditions of the river/stream channel, the floodplain adjoining each side of the channel, the computed floodway, the cross-sectional area to be occupied by any proposed development and all historic high water information.
 - b. Profiles showing the bottom of the channel, the top of both left and right banks and computed base flood water surface elevations for the 10-, 25-, 50- and 100-year events.
 - c. Plans and specifications of any flood protection for structures, construction areas, filling, dredging, channel improvements, storage of materials, water supply, and sanitary facilities within the floodplain.

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- d. Complete printout of input and output data of the model that was used for the analysis. Liberal use of comments and written discussion will assist considerably in understanding the model logic and minimize misinterpretations and/or questions.
- e. A map, showing the graphical/plotted location and limits of the computed floodway and/or floodplain.
- f. Three copies of ready-to-run digital files of both the hydrologic and hydraulic model and its input and output files used in the study. Data shall be submitted on a disk in standard ASCII format, ready to use on an IBM-compatible personal computer and in the applicable software application (i.e., HEC-RAS, HSPF – Hydrological Simulation Program – FORTRAN, SBUH, etc.).
- g. A section on the flood flow including computer modeling and/or calculations (see below for additional requirements on flood flow determinations).
- h. Aerial photographs of the site including pre-February 1996 and post-February 1996 photos of the site.
- i. All field survey notes/computations, maps, and drawings for each cross-section with water surface elevation at the time of the cross-section field survey.

C. Computer Modeling Information. Floodway/floodplain studies submitted to the city for review must include output summary tables and include the following (but not limited to) items:

1. Cross-section(s) identification number.
2. Range of flows being examined.
3. Computed water surface elevation at each cross-section.
4. Energy grade line at each cross-section.
5. Graphical plots of the channel cross-sections with computed water surface elevations for all model runs including calibrated model runs.
6. All model input and output printouts.
7. Graphical plots of the model output data that show the points and segments along each cross-section where deep and/or fast flowing water occurs. This shall include cross-section plots of depth and velocity in one-unit increments. The plots shall also be accompanied with a table listing the station distance (right and left bank), flow rate, area, hydraulic depth, velocity, and whether each point is a floodway.
8. A plan sheet clearly showing the graphical representation of the bounded area of the floodway based on DFF criteria through the entire study site and reach. Note that identified islands or pockets within the middle of the bounded floodway area are generally considered as part of the floodway, unless otherwise approved by the department.
9. Discussion on the starting water surface elevation for the hydraulic model.

Article III. Determining Flood Flows

The three techniques used to determine the flows used in a flood study depend on whether gauge data is available, whether a basin plan has been adopted, or a detailed flood study has been done and approved for use by the Department. The first technique is for basins with adopted basin plan areas. The second technique is used if a gauging station exists on the stream. The third technique is used on ungauged catchments or those with an insufficient length of record. In all cases, the engineer shall be responsible for assuring that the hydrologic methods used are technically reasonable, conservative, conform to the FEMA publication, Guidelines and Specifications for Study Contractors, and are acceptable by FEMA and the department.

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A. Flood Flows from Adopted Basin Plan Information. Flood flows may be determined using information from the city's basin plan. The hydrologic model used in the basin plan shall be updated to include the latest changes in zoning or any additional information regarding the basin which has been acquired since the adoption of the basin plan.

B. Flood Flows from Stream Gauge Data. Determining flood flows from stream gauge data uses the Log-Pearson Type III distribution method as described in the Guidelines for Determining Flood Flow Frequency, Bulletin 17B of the Hydrology Committee, United States Water Resources Council (revised October 1981).

1. This technique may be used only if data from a gauging station in the basin is available for a period of at least 10 years.
2. If the difference in the drainage area on the stream at the study site and the drainage area to a gauging station on the stream at a different location in the same basin is less than or equal to 50 percent, the flow at the study site shall be determined by transferring the calculated flow at the gauge to the study site using a drainage area ratio raised to the 0.86 power, as in the following equation:

where

- Q_{ss} = estimated flow for the given return frequency on the stream at the study site.
- Q_G = flow for the given return frequency on the stream at the gauge site.
- A_{ss} = drainage area tributary to the stream at the study site.
- A_G = drainage area tributary to the stream at the gauge site.

3. If the difference in the drainage area at the study site and the drainage area at a gauging station in the basin is more than 50 percent and a basin plan has not been prepared, a continuous model shall be used as described below to determine the flood flows at the study site.

4. In all cases where dams or reservoirs, floodplain development, or land use upstream may have altered the storage capacity or runoff characteristics of the basin so as to affect the validity of this technique, a continuous model shall be used to determine flood flows at the study site.

C. Flood Flows from a Calibrated Continuous Model. Flood flows may be determined by utilizing a continuous flow simulation model such as HSPF or other equivalent continuous flow simulation model, as approved by the city. Where flood elevation or stream gauging data are available, the model shall be calibrated to the known data. Otherwise, regional parameters may be used.

Article IV. Determining Flood Elevations, Profiles and Floodways (Hydraulic Model)

A. Reconnaissance. The applicant's project engineer is responsible for the collection of all existing data with regard to flooding in the study area. This shall include a literature search of all published reports in the study area and adjacent communities and an information search to obtain all unpublished information on flooding in the immediate and adjacent areas from federal, state, and local units of government. This search shall include specific information on past flooding in the area, drainage structures such as bridges and culverts that affect flooding in the area, available topographic maps, available community maps, photographs of past flood events, and general flooding problems within the community. Documented discussions with nearby property owners should also be done to obtain a witness account of the flooding extent. A field reconnaissance shall be made by the applicant's project engineer to determine hydraulic conditions of the study area, including type and number of structures, locations of cross-sections, and other parameters including the roughness values necessary for the hydraulic analysis.

B. Base Data. Channel cross-sections used in the hydraulic analysis shall be current/existing at the time the study is performed and shall be obtained by field survey. Topographic information obtained from aerial photographs/mapping may be used in combination with surveyed channel cross-sections in the hydraulic analysis.

The elevation datum of all information used in the hydraulic analysis shall be verified. All information shall be referenced directly to NAVD 1988 (and include local correlation to NGVD) unless otherwise approved by the city.

C. Methodology. Flood studies and analysis (including deep and/or fast flowing floodways and zero-rise analysis) shall be calculated using the U.S. Army Corps of Engineers HEC-RAS computer model (or subsequent revision) unless otherwise approved by the city.

D. Adequacy of the Hydraulic Model. Edgewood considers the following (but not limited to) factors when determining the adequacy of the hydraulic model for use in the floodway/floodplain model:

1. Cross-section of a downstream starting location and spacing.
2. Differences in energy grade line (significant differences in the energy grade line from cross-section to cross-section are an indication that cross-sections should be more closely spaced or that other inaccuracies exist in the hydraulic model).
3. Methods and results for analyzing the hydraulics of structures such as bridges and culverts.
4. Lack of flow continuity.
5. Use of a gradually varied flow model. In certain cases, rapidly varied flow techniques may need to be used in combination with a gradually varied flow model such as weir flow over a levee, flow through a spillway of a dam, or special application of bridge flow (pressure flow if bridge superstructure is shown to be submerged for the study event).
6. Manning's "n" value.
7. Calibration of hydraulic model to known and/or observed flow stage elevations including past flood events.
8. Special applications. In some cases, steady state one-dimensional hydraulic models may not be sufficient for preparing the floodplain/floodway analysis. This may occur where sediment transport, two-dimensional flow, or other unique hydraulic circumstances affect the accuracy of the model. In these cases, the project engineer must propose and obtain department approval of alternative models for establishing the water surface elevations.
9. All reported error and/or warning messages by the model must be properly and adequately addressed and/or resolved and included in the report for review verification.

Article V. Zero-Rise Analysis (ZRA)

A. Zero-rise analysis (ZRA) is required where encroachment within the flood fringe area is allowed and approved by the department. The ZRA must show that the proposed development encroachment in the flood fringe area will not show a measurable rise in the base flood elevation (i.e., less than 0.01 foot), resulting from a comparison of existing conditions and proposed conditions. This is directly attributable to development in the floodplain but not attributable to manipulation of mathematical variables such as roughness factors, coefficients, discharge, and other hydraulic parameters.

B. In addition to those items listed in subsection (A) of this article, the following shall be included in a ZRA:

1. Floodway boundaries (based on zero-rise) are to follow the stream lines and reasonably balance the rights of property owners on either side of the floodway. Use of the automatic equal conveyance encroachment option in the model will be considered equitable.
2. The ZRA must include a sufficient number of cross-sections in order to accurately model the subject fill and compensatory storage areas of the site. In all cases, cross-sections shall be located downstream, through the subject site and upstream of the site at a very minimum. They shall also be located where changes in channel and the fill material characteristics occur, such as slope, shape, and roughness. The sections shall also be located perpendicular to the flow path in the channel and the outside overbank areas. The department shall

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review and approve the proposed number and location of cross-sections. All cross-sections and surveys shall be prepared and certified by a professional land surveyor or registered professional engineer in the state of Washington.

3. The difference between two profiles of water surface elevation at the cross-section (e.g., difference between existing and encroached water surface). The model must report 0.01 feet or less an allowable change in the water surface elevation. This must be shown in the profile graphical plot as well.

4. The difference between profiles of the energy grade line at the cross-section. The model must report 0.01 feet or less. This is the allowable change in the energy grade line. This must be shown in the profile graphical plot as well.

C. Conveyance Capacity.

1. The ZRA must also show that the proposed development encroachment in the flood fringe area will not show a measurable decrease (less than 0.01 CFS) in the conveyance capacity of the channel, resulting from a comparison of existing conditions and proposed conditions, for each of the cross-sections. This is also directly attributable to development in the floodplain but not attributable to manipulation of mathematical variables such as roughness factors, coefficients, discharge, and other hydraulic parameters.

2. The analysis must provide calculations of the reduction in conveyance caused by the proposed development encroachment, assuming no change in the water surface elevation, and using the roughness coefficient value(s) appropriate for the proposed development.

3. The analysis must then provide calculations for the increase in conveyance of the proposed compensatory measure, using the roughness coefficient value(s) appropriate for the proposed development.

4. Include a comparison analysis and discussion from subsections (C)(2) and (3) of this article. The comparison must adequately show that the conveyance capacity has not measurably decreased between the existing condition and proposed development condition.

Floodplain/Floodway Zero-Rise Certification

This is to certify that I am a duly qualified professional engineer licensed to practice in the state of Washington.

This is to further certify that the attached floodplain/floodway zero-rise analysis conclusively shows that the proposed development of:

(Name of Development) Parcel Number

will not increase the 100-year base flood elevation(s) and widths nor reduce the conveyance capacity of the floodplain/floodway and its associated channel to the

(Name of River, Stream, Pothole or other Watercourse)

Supporting Data

Base Flood Elevation (Pre-Development) = _____ FT (NAVD 88)

Base Flood Elevation (Post-Development) = _____ FT (NAVD 88)

Conveyance Capacity (Pre-Development) = _____ CFS

Conveyance Capacity (Post-Development) = _____ CFS

with compensatory storage)

Signature Date

Title Firm Name

Address

City

State Zip Code

APPENDIX B

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CHANNEL MIGRATION ZONE STUDY REQUIREMENTS

The channel migration zone (CMZ) is the area within the lateral extent of likely stream channel movement due to stream bank destabilization and erosion, rapid stream incision, and shifts in location of stream channels. The CMZ will define areas in which, to the best information available, development should be regulated due to the dangers expected from erosion.

Article I. Determining Channel Migration Zone Limits

A. The CMZ shall be based on available historic records of channel migration, or 100 years of calculated channel migration whichever is greater, and will generally include those areas that encompass:

1. The limit of geologic controls, such as hill slope, bedrock outcrop, or abandoned floodplain terrace;
2. Side channels, abandoned channels, and oxbows; and
3. Outside edges of progressive bank erosion at meander bends.

B. Channel migration over the 100-year time frame can be estimated and predicted from geomorphic analysis of annual bank erosion rates, historic meander belt width, and measured meander bend amplitudes, potential avulsion sites, and previous river channel locations as depicted on historic aerial photographs and maps. The 100-year time span represents the time required to grow mature trees that can provide functional large woody debris to streams.

C. The CMZ boundaries will be determined using the following specific criteria:

1. The representative average annual rate of channel migration in the affected river reach is calculated by dividing the lateral distance eroded with the corresponding elapsed time shown in sequential aerial photographs or historic maps (distance/time equals channel movement). Measurements from reaches that have had some form of bank armoring shall not be included. Historical records will need to be checked closely for this information.
2. Identify the width of the channel migration zone by multiplying the representative average annual erosion rate by 100 years.

D. Areas separated from the active channel by legally existing artificial channel constraints (levees, roads, driveways, etc.) that limit bank erosion and channel avulsion to the 100-year recurrence interval flood elevation plus three feet of freeboard shall serve as a boundary for the outer limit of the CMZ.

Article II. Channel Migration Zone Study Content and Required Information

Three copies of the completed channel migration zone study shall be submitted. The study submittal must be stamped by a licensed professional engineer or professional geologist with five years' experience in fluvial geomorphology, river dynamics, or geotechnical engineering. The CMZ study shall include the following information in addition to that required for the drainage plan of a proposed project. The CMZ study will consist of a written technical report including:

- A. Detailed methods, techniques, and assumptions used in determining the location of the CMZ.
- B. A vicinity map and site with scale, north arrow, and parcel number(s) or specific site being studied.
- C. A clear statement of the requested revision to the county's determination of the 100-year floodplain limits as the CMZ.
- D. A clearly stated conclusion of the study results that support the requested revision. The conclusion needs to document the basis for the revision, show how the data presented refutes the 100-year floodplain limits as the CMZ, and calculates the new results using the new information.
- E. A map clearly delineating the subject property and the CMZ of the adjacent watercourse. In addition to providing a hard copy of the CMZ map, the CMZ map shall also be provided in ARC-View shapefile format. Contact the city GIS department for mapping and aerial imaging standards. (Ord. 02-200 § 2).

Chapter 14.80**LANDSLIDE HAZARD AREAS**

Sections:

- 14.80.010 Purpose.
- 14.80.020 Landslide hazard areas.
- 14.80.030 Landslide hazard area review procedures.
- 14.80.040 Landslide and erosion hazard area standards.
- 14.80.050 Buffer requirements.
- 14.80.060 Appendices.

14.80.010 Purpose.

The following statements describe the purpose of this chapter is to:

- A. Protect human life and health.
- B. Regulate uses of land in order to avoid damage to structures and property being developed and damage to neighboring land and structures.
- C. Identify and map active landslide hazard areas.
- D. Minimize the ill effects on wetlands and critical fish and wildlife habitat that can result from landslides.
- E. Establish permit requirement and review procedures for development proposals in areas with potential landslides. (Ord. 02-200 § 2).

14.80.020 Landslide hazard areas.

A. Landslide Hazard Areas Indicators. Landslide hazard areas are areas potentially subject to mass movement due to a combination of geologic, seismic, topographic, hydrologic, or manmade factors. Landslide hazard areas can be identified by the presence of any of the following indicators:

- 1. Areas of historic failures, including areas of unstable, old and recent landslides or landslide debris within a head scarp.
- 2. Areas with all of the following characteristics:
 - a. Slopes steeper than 15 percent with a vertical relief of 20 feet or more; and
 - b. Hillsides that intersect geologic contacts with a relatively permeable sediment overlying a relatively impermeable sediment or bedrock; and
 - c. Springs or groundwater seepage.
- 3. Areas exhibiting geomorphological features indicative of past slope failure within the last 10,000 years, such as hummocky ground, back-rotated benches on slopes, tension cracks, etc.
- 4. Any area with a slope of 40 percent or steeper and with a vertical relief of 15 or more feet. Manmade slopes of 40 percent or steeper with a vertical relief of 15 feet or more may be exempted from the requirements of this section of the code provided that it can be demonstrated by a qualified geotechnical professional that such an exemption does not result in an increased risk of landsliding or damage to the subject site, nearby properties, or existing structures and, any associated hazards to proposed structures are suitably mitigated. For the purposes of determining whether a slope is considered to be a landslide hazard area, the horizontal and vertical distance between the top and toe of slope are utilized.
- 5. Areas that are at risk of mass movement due to seismic events.

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B. Potential Landslide Hazard Areas. Potential landslide hazard areas, as depicted on the Geologically Hazardous Areas map, are those areas where the suspected risk of slope instability and landslide is sufficient to require a geological assessment to assess the potential for active landslide activity. Potential landslide hazard areas are determined by using the following criteria:

1. Areas that possess one or more of the landslide hazard area indicators (stratigraphy, topography, emergent groundwater seepage, etc.) as set forth in subsection (A) of this section and any adjacent area within a distance of 65 feet. These areas include, but are not necessarily limited to, those areas designated on the City's Geologically Hazardous Areas map as moderate or steep slope areas.

14.80.030 Landslide hazard area review procedures.**A. General Requirements.**

1. The city's Geologically Hazardous Areas map provides an indication of where potential landslide hazard areas are located within the city. The actual presence or location ~~of~~ ~~landslide~~ of landslide hazard areas that have not been mapped, but may be present on or adjacent to a site, shall be determined using the geological assessment procedures established in this chapter.
2. The department will complete a review of the Geologically Hazardous Areas map and other source documents for any proposed regulated activity to determine whether the site is, or may be, located within a landslide hazard area or potential landslide hazard area. Identification of a landslide hazard area or potential landslide hazard area may also occur as a result of field investigations conducted by department staff.
3. When the department's maps or sources indicate that the site for a proposed regulated activity is or may be located within a landslide hazard area or potential landslide hazard area, the department shall require the submittal of a geological assessment as outlined in subsection (B) of this section.
4. Unless otherwise stated in this chapter, the critical protective measure provisions contained in EMC 14.10.080 shall apply.

B. Geological Assessment. A geological assessment is a site investigation process to evaluate the on-site geology affecting a subject property. The findings of the geological assessment shall be presented in a Landslide Hazard Geotechnical Verification or Geotechnical Report.

1. Geological assessments shall be submitted to the department for review and approval together with a landslide hazard area application and associated fee.
2. A geological assessment shall include a field investigation and may include the use of historical air photo analysis, LiDAR mapping, review of regional geologic mapping, review of public records and documentation, and interviews with adjacent property owners, etc.
3. The geological assessment shall include the following information and analysis:
 - a. A determination of which areas on the site or within the vicinity of the site meet the criteria for a landslide hazard area as set forth in EMC 14.80.020(A).
 - b. Consider the run-out hazard of landslide debris to the proposed development that starts upslope (whether part of the subject property or on a neighboring property) and/or the impacts of landslide run-out on down slope properties.
 - c. The geological assessment shall include a detailed review of the field investigations, published data and references, data and conclusions from past geological assessments, or geotechnical investigations of the site, site-specific measurements, tests, investigations, or studies, as well as the methods of data analysis and calculations that support the results, conclusions, and recommendations.
4. Geological assessments shall be prepared, signed, and dated by a geotechnical professional (as defined in Chapter 14.15 EMC and established in this chapter) and the format shall be pre-approved by the department.

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5. A geotechnical professional shall complete a field investigation and geological assessment to determine whether or not a landslide hazard area is likely to exist within 300 feet of the site. Where access to off-site properties is not available by the geotechnical professional, evaluation of off-site landslide hazards must include review of regional geologic mapping and LiDAR based topographic mapping.

a. The geological assessment shall be submitted in the form of geotechnical verification when the geotechnical professional finds that no landslide hazard area exists within 300 feet of the project area. The geotechnical verification shall meet the requirements contained in EMC 14.80.060, Appendix A.

b. The geological assessment shall be submitted in the form of a geotechnical report when the geotechnical professional finds that a landslide hazard area exists within 300 feet of the proposed project area or when a geotechnical professional determines that mitigation measures are necessary in order to construct or develop within a potential landslide hazard area. The geotechnical report shall meet the requirements contained in EMC 14.80.060, Appendix B.

6. Geological assessments that do not contain the minimum required information or comply with the landslide hazard area standards set forth in EMC 14.80.030 will be returned to the geotechnical professional for revision.

7. The department shall review the geological assessment and either:

a. Accept the geological assessment; or

b. Reject the geological assessment and require revisions or additional information.

8. When the geological assessment has been accepted, the department shall issue a decision on the landslide hazard area application.

9. A geological assessment for a specific site may be valid for a period of up to five years when the proposed land use activity and surrounding site conditions are unchanged. However, if any environmental conditions associated with the site change during that five-year period, the applicant may be required to submit an amendment to the geological assessment. (Ord. 02-200 § 2).

14.80.040 Landslide and erosion hazard area standards.

A. Landslide Hazard Areas. Any development, encroachment, filling, clearing or grading, building structures, impervious surfaces, and vegetation removal shall be prohibited within landslide hazard areas and associated buffers except as specified in the following standards:

1. Stormwater Conveyance. Stormwater conveyance shall be allowed when it is conveyed through a high-density polyethylene stormwater pipe with fuse-welded joints and when no other stormwater conveyance alternative is available. The pipe shall be located on the surface of the ground and be properly anchored so that it will continue to function in the event of an underlying slide.

2. Utility Lines. Utility lines will be permitted when no other conveyance alternative is available. The line shall be located above ground and properly anchored and/or designed so that it will continue to function in the event of an underlying slide.

3. Roads, Bridges, and Trails. Roads, bridges, and trails shall be allowed when all of the following conditions have been met:

a. Mitigation measures are provided that ensure the roadway prism and/or bridge structure will not be susceptible to damage from landslide-induced ground deformation or impact/coverage by landslide debris. Mitigation measures shall be designed for static and seismic loading conditions in accordance with the most recent version of the American Association of State Highway and Transportation Officials (AASHTO) Manual.

b. The road is not a sole access for a development.

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- c. The removal or disturbance of vegetation, clearing or grading shall be prohibited during the wet season (November 1st to May 1st).

B. Landslide Hazard Management Areas. All regulated activities may be allowed in areas located within 300 feet of a landslide hazard area subject to the following standards:

1. The department reviews and approves a geological assessment – geotechnical report and determines that the potential landslide hazard area is stable.
2. The proposed development is located outside of a landslide hazard area and any required buffer, as set forth in EMC 14.80.050.
3. The proposed recommendations and mitigation measures contained within the geotechnical report are adequate to reduce or mitigate risks to health and safety.
4. The proposed development shall not decrease the factor of safety for landslide occurrence below the limits of 1.5 for static conditions and 1.1 for dynamic conditions. Analysis of dynamic (seismic) conditions shall be based on a minimum horizontal acceleration as established by the current version of the International Building Code.
5. The removal and disturbance of vegetation, clearing or grading shall be limited to the area of the approved development and shall not be allowed during the wet season (November 1st through May 1st) unless adequate provisions for wet season erosion have been addressed in the geotechnical report and approved by the department.
6. Surface drainage from developed areas, including downspouts and runoff from paved or unpaved surfaces up slope, shall not be directed through a landslide hazard area or its associated buffer unless it is conveyed in conformance with the provisions in EMC 14.80.030.
7. Stormwater retention facilities, including infiltration systems utilizing perforated pipe, are prohibited unless the slope stability impacts of such systems have been analyzed and mitigated by a geotechnical professional and the impacts have been determined to be negligible.
8. The proposed development shall not create a need for larger landslide hazard area buffers and setbacks on neighboring properties unless approved through a notarized written agreement with the affected property owner(s).
9. The proposed development shall be sited far enough from regressing slope faces to project 120 years of useful life for the proposed structure(s) or infrastructure.
10. Any proposed lots must be completely located outside any identified landslide hazard areas or their associated buffers.
11. Landslide hazard areas that are directly adjacent to any riparian areas, or wetlands, may be subject to additional buffer requirements and standards as set forth in Chapter 14.40 EMC, Fish and Wildlife Habitat Conservation Areas, or wetlands as set forth in Chapter 14.30 EMC, Wetlands. (Ord. 02-200 § 2).

14.80.050 Buffer requirements.

A. Determining Buffer Widths.

1. The buffer width shall be measured on a horizontal plane from a perpendicular line established at the edge of the landslide hazard area limits (both from the top and toe of the slope).
2. A buffer of undisturbed vegetation shall be required for a landslide hazard area. The required buffer width is the greater amount of the distances described in EMC 14.80.050:
 - a. Fifty feet from all edges of the active landslide hazard area limits;

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- b. A distance of one-third the height of the slope at the top of the active landslide hazard area and a distance of one-half the height of the slope at the bottom of an active landslide hazard area; or
- c. The buffer widths may be reduced below the widths specified in EMC 14.80.050, or eliminated upon approval by the department of a geotechnical report that demonstrates that such a reduction would not result in an increased risk of landslide activity either on or off of the subject property.

B. Modification of Buffer Widths. The department may require a larger buffer width than the buffer distance, as determined in subsection (A) of this section, if any of the following are identified:

1. The adjacent land is susceptible to severe erosion and erosion control measures will not effectively prevent adverse impacts.
2. The area has a severe risk of slope failure or downslope stormwater drainage impacts. (Ord. 02-200 § 2).

14.80.060 Appendices.

A. Geological Assessment – Landslide Hazard Geotechnical Verification.

B. Geological Assessment – Landslide Hazard Geotechnical Report.

APPENDIX A**GEOLOGICAL ASSESSMENT – LANDSLIDE HAZARD GEOTECHNICAL VERIFICATION**

A. A geotechnical verification shall include the following:

1. The general critical areas report requirements in EMC 14.10.082.
2. A description of the surface and subsurface geology, hydrology, soils, and vegetation at the site and a list of the landslide hazard area indicators, as set forth in EMC 14.80.020(A), that were found on or in the vicinity of the site.
3. A summary of the results, conclusions, and recommendations resulting from the geological assessment of the landslide hazards on or in the vicinity of the site. This summary shall address all of the information required in EMC 14.80.030(B). The summary should include a description of observations during the site visit and a discussion of information obtained from review of the listed documents in EMC 14.80.030(B)(2).
4. An accurate site plan drawn at a scale of one inch equals 20 feet, one inch equals 30 feet, one inch equals 50 feet (or other scale deemed appropriate by the department) is required. The department may require that the site plan information listed below be based on a field survey by a licensed surveyor. The site plan shall include:
 - a. The limits/location of the active landslide hazard area(s).
 - b. The limits/location of the required landslide hazard buffer based upon the requirements set forth in EMC 14.80.050(A).
 - c. The location of any existing and proposed structures, utilities, on-site septic systems, wells, and stormwater management facilities.
 - d. The full geographical limits of the proposed project area (area to be developed).
 - e. Dimension the closest distance between the identified active landslide hazard area boundary and the project area.
 - f. Existing topography on the site presented in two-foot contours.
 - g. Property lines for the site.
 - h. North arrow and plan scale.

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B. The geotechnical professional who prepared the verification document shall stamp the verification with his or her license stamp/seal.

C. Geotechnical verifications shall be in conformance with a format that is pre-approved by the department.

APPENDIX B

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GEOLOGICAL ASSESSMENT – LANDSLIDE HAZARD GEOTECHNICAL REPORT

A. At a minimum, a geotechnical report shall include the following:

1. The general critical areas report requirements in EMC 14.10.082.
2. A description of the surface and subsurface geology, hydrology, soils, and vegetation of the site and a list of the landslide hazard area indicators, as set forth in EMC 14.80.020(A), that were found on or in the vicinity of the site.
3. A summary of the results, conclusions, and recommendations resulting from the geological assessment of the landslide hazards on or in the vicinity of the site. This summary shall address all of the information required in EMC 14.80.030(B).
4. An accurate site plan drawn at a scale of one inch equals 20 feet, one inch equals 30 feet, one inch equals 50 feet (or other scale deemed appropriate by the department) is required. The department may require that the site plan information listed below be based on a field survey by a licensed surveyor. The site plan shall include:
 - a. The limits/location of the landslide hazard area(s) within the site. Delineation of the landslide hazard area limits shall identify any areas of historic landslide activity.
 - b. The limits/location of the required landslide hazard buffer based upon the requirements set forth in EMC 14.80.050(A).
 - d. The location of any existing and proposed structures, utilities, on-site septic systems, wells, and stormwater management facilities.
 - e. The full geographical limits of the proposed project area (area to be developed).
 - f. Location and unique identifier of geotechnical borings, CPT soundings, or other surveys or explorations used to characterize subsurface conditions.
 - g. Extent of cross-section(s) used to evaluate the three-dimensional subsurface geologic and groundwater conditions at the site.
 - h. Extent of cross-section(s) used in the evaluation of slope instability.
 - i. Existing topography on the site presented in two-foot contours.
 - j. Property lines for the site.
 - k. North arrow and plan scale.
5. Subsurface characterization data must be provided. The data shall be based on both existing and new information that may include soil borings, test pits, geophysical surveys, or other appropriate subsurface exploration methods, development of site-specific soil and/or rock stratigraphy, and measurement of groundwater levels including variability resulting from seasonal changes, alterations to the site, etc.
 - a. Geotechnical borings or CPT soundings will be advanced to a depth sufficient to characterize geologic conditions within and below the existing or potential landslide mass.

b. Other methods used for subsurface characterization shall be assigned a unique identifier, and the basic data presented in appropriate graphical and/or tabular format.

c. The three-dimensional subsurface conditions at the site shall be presented using one or more cross-sections showing location and depth penetration of geotechnical borings, CPT soundings, or other subsurface characterization methods, interpretation of the geometry of major soil units, and projected location of the static groundwater surface determined from the subsurface exploration. The cross-sections shall be presented at a scale of one inch equals 20 feet, one inch equals 30 feet, one inch equals 50 feet (or other scale deemed appropriate by the department). Each cross-section shall have a legend with a description of the various major soil units.

6. A detailed description of any prior grading activity, soil instability, or slope failure.

7. Where deemed appropriate by the geotechnical professional assessments and conclusions regarding slope stability for both the existing and developed conditions shall be presented and documented. These assessments and conclusions shall include the information provided below in EMC 14.80.060, Appendix B. The project geotechnical professional must provide justification for not including a slope stability analysis if one is excluded. The City's geotechnical professional reserves the right to request a slope stability analysis based on site conditions. If a dispute arises between the project geotechnical professional and the City's geotechnical professional regarding the need for a slope stability analysis, then the City reserves the right to require an independent, third party review to be paid for by the applicant to resolve the dispute.

a. Determination of the potential types of landslide failure mechanisms (e.g., debris flow, rotational slump, translational slip, etc.) that may affect the site.

b. Quantitative stability evaluation of slope conditions of the various failure mechanisms using state-of-the-practice modeling techniques. Limiting equilibrium methods of analysis shall state the stability conditions as a factor of safety. The most unstable failure geometry(ies) shall be presented in the form of a cross-section(s), with the least stable failure geometry for each failure mechanism clearly indicated. The stability evaluation shall also consider dynamic (earthquake) loading, and shall use a minimum horizontal acceleration as established by the current version of the International Building Code.

c. An analysis of slope regression rate shall be presented in those cases where stability is impacted or influenced by erosional processes (e.g., wave cutting, stream meandering, etc.) acting on the toe of the slope.

8. Mitigation recommendations using engineered measures to protect the proposed structure(s) and any adjacent structures, infrastructure, adjacent wetlands, or critical fish and wildlife habitat from damage or destruction as a result of proposed construction activities shall be designed by a professional engineer. Design plans and detailed geotechnical recommendations may be provided in a document separate from the geotechnical report. When appropriate, such recommendations/plans may include, but are not necessarily limited to:

a. Design plans and associated design calculations for engineered structures or drainage systems (e.g., structural foundation requirements, retaining wall design, etc.).

b. Recommendations and requirements pertaining to the handling of surface and subsurface runoff in the developed condition.

c. Identification of necessary geotechnical inspections to assure conformance with the report mitigation and recommendations.

d. Proposed angles of cut and fill slopes, site grading requirements, final site topography (shown as two-foot contours), and the location of any proposed structures, on-site septic systems, wells, and stormwater management features or facilities associated with the development detailed within the body of the report and shown on a site map at the same scale as that required in subsection (A)(8) of this appendix.

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e. Soil compaction criteria and compaction inspection requirements.

f. An analysis that indicates how the proposal meets the standards outlined in EMC 14.80.040.

g. Structural foundation requirements and estimated foundation settlement shall be provided if structures are proposed.

h. Lateral earth pressures.

i. Suitability of on-site soil for use as fill.

j. Mitigation measures for building construction on each lot for short plats, large lots, or formal plats such that additional geotechnical professional involvement is minimized during building construction.

B. The geotechnical report shall be prepared by an engineering geologist and shall be co-written by both an engineering geologist and professional engineer where both geological interpretations and engineering analyses and designs are necessary or prudent in the mitigation of the landslide hazard.

C. The geotechnical professional(s) who prepared the geotechnical report shall stamp the report with his or her license stamp/seal.

D. The department may request a geotechnical professional to provide additional information in the geotechnical report based upon existing conditions, changed conditions, or unique circumstances occurring on a case-by-case basis.

E. Geotechnical reports shall be in conformance with a format that is pre-approved by the department. (Ord. 05-247 § 1; Ord. 02-200 § 2).

Chapter 14.90**SEISMIC (EARTHQUAKE) HAZARD AREAS**

Sections:

- 14.90.010 Purpose.
- 14.90.020 Seismic hazard areas.
- 14.90.030 Seismic hazard area review procedures.
- 14.90.040 Seismic hazard area standards.
- 14.90.050 Buffer requirements.
- 14.90.060 Appendices.

14.90.010 Purpose.

Earthquakes have historically occurred throughout the Puget Sound region. Large earthquakes have caused loss of life and over a billion dollars in property damage. The purpose of this chapter is to protect the public health, safety, and general welfare of the citizens of Edgewood from the damaging effects of earthquakes. This chapter provides standards to ensure life safety and minimize public and private losses that may occur within a seismic hazard area. (Ord. 02-200 § 2).

14.90.020 Seismic hazard areas.

A. General. Seismic hazard areas are areas subject to severe risk of damage as a result of earthquake-induced landsliding, seismic ground shaking, dynamic settlement, fault rupture, or soil liquefaction.

B. Potential Seismic Hazard Areas. Potential seismic hazard areas are those areas where the suspected risk of earthquake induced landsliding, dynamic settlement, fault rupture, ground deformation caused by soil liquefaction, or flooding is sufficient to require a further seismic hazard area review as set forth in EMC 14.90.030. These potential seismic hazard areas are determined using the following criteria:

1. Earthquake Induced Landslide Hazard Areas. Areas identified as potential landslide hazard areas in EMC 14.80.020.
2. Liquefaction and/or Dynamic Settlement Hazard Areas. Areas identified as high and moderate liquefaction and dynamic settlement hazard areas on the Geologically Hazardous Areas map.
3. Fault Rupture Hazard Areas.

C. Seismic Hazard Area Categories.

1. Earthquake Induced Landslide Hazard Areas. Earthquake induced landslide hazard areas include slopes that can become unstable as a result of strong ground shaking, even though these areas may be stable under non-seismic conditions.
2. Liquefaction and/or Dynamic Settlement Hazard Areas.
 - a. Liquefaction hazard areas are areas underlain by unconsolidated (corrected Standard Penetration Test blow counts, $[(N_1)_{60}]$ less than 30) sandy or silt soils (Unified Soil Classification System S or M soil-types) and a shallow groundwater table (static groundwater depth less than 30 feet) capable of liquefying in response to earthquake shaking.
 - b. Dynamic settlement hazard areas are areas underlain by a significant thickness (more than 10 feet) of loose or soft soil not susceptible to liquefaction (e.g., peats or organic silts and clays, unsaturated loose sands or silts), but that could result in vertical settlement of the ground surface in response to earthquake shaking.
3. Fault Rupture Hazard Areas. Fault rupture hazard areas include:

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- a. Active fault rupture hazard areas are areas where displacement (movement up, down, or laterally) of the ground surface has occurred during past earthquake(s) in the Holocene Epoch; and
- b. Areas adjacent to the active fault rupture hazard area that may be potentially subject to ground surface displacement in a future earthquake.

14.90.030 Seismic hazard area review procedures.

A. General Requirements.

1. The city's Geologically Hazardous Areas map provides an indication of where potential seismic hazard areas are located within the city.
2. The department will complete a review of the Critical Areas Atlas – Seismic Hazard Area Map for any regulated activity to determine whether the site for a proposed regulated activity is located within a seismic hazard area.
3. When the department's maps indicate that the site for a proposed regulated activity is located within a potential liquefaction or dynamic settlement hazard area, the department shall require the submittal of a geological assessment as outlined in subsection (B) of this section.
4. When the department's maps indicate that the site for a proposed regulated activity is located within a potential fault rupture hazard area, the department shall require the submittal of a geological assessment as outlined in subsection (B) of this section. The requirement to submit a geological assessment may be waived at the department's discretion when it is determined that the proposed project area for the regulated activity is located outside the potential fault rupture hazard area.
5. When the department's maps indicate that the site for a proposed regulated activity is or may be located within a potential earthquake-induced landslide hazard area, the department shall conduct a review pursuant to the requirements set forth in EMC 14.80.030.
6. Unless otherwise stated in this chapter, the critical area protective measure provisions contained in EMC 14.10.080 shall apply.

B. Geological Assessments. A geological assessment is a site investigation process to evaluate the on-site geology affecting a subject property and define the extent and severity of potential seismic hazards.

1. A geological assessment shall be required when the department's maps, sources, or field investigation indicate a site contains a potential liquefaction, dynamic settlement, or fault rupture hazard area. Geological assessments shall be submitted to the department for review and approval together with a seismic hazard area application.
2. A geotechnical professional(s) shall complete a field investigation and geological assessment to determine whether or not the site for a proposed regulated activity is located within a liquefaction or dynamic settlement hazard area.
 - a. The geological assessment shall be submitted in the form of a geotechnical verification when the geotechnical professional(s) finds that no liquefaction or dynamic settlement hazard area exists within the proposed project area. The geotechnical verification shall meet the requirements contained in EMC 14.90.060, Appendix A.
 - b. The geological assessment shall be submitted in the form of a geotechnical report when the geotechnical professional(s) finds that a liquefaction or dynamic settlement hazard area exists within the proposed project area. The geotechnical report shall meet the requirements contained in EMC 14.90.060, Appendix A.
3. A geotechnical professional shall complete a field investigation and geological assessment presented in the form of a geotechnical report to determine whether or not the site for a proposed regulated activity is located within a fault rupture hazard area. The geological assessment shall meet the requirements contained in EMC

~~Chapter 14.80 SEISMIC (EARTHQUAKE) HAZARD AREAS~~

14.90.060, Appendix B. Any structural recommendations proposed to mitigate the fault rupture hazard that are included in the geotechnical report shall be prepared by an engineer.

4. All geological assessments for seismic hazards submitted under this chapter shall include, at a minimum, the following:

- a. The dates when the geological assessment was conducted and when the assessment was prepared.
- b. The parcel number(s) of the subject property.
- c. Site address, if the city has assigned one.
- d. A brief description of the project (including the proposed land use) and the area to be developed.
- e. A map showing the property lines for the site, existing two-foot contours of the existing site topography, and the location of any existing structures, utilities, wells, stormwater or septic systems, or other developments.
- f. A site plan delineating the limits of the proposed development and the location of all areas of the site subject to potential seismic hazards based on the Geologically Hazardous Areas map and, if applicable, limits of associated buffers.
- g. A description of the surface and subsurface geology, hydrology, soils, and vegetation of the site.
- h. A detailed overview of the field investigations, published data and references, data and conclusions from past geological assessments or geotechnical investigations of the site, site-specific measurements, tests, investigations, or studies, as well as the methods of data analysis and calculations that support the determination regarding whether liquefaction and/or dynamic settlement hazards are present on the site.
- i. The results, conclusions, and recommendations resulting from the geological assessment of the liquefaction and/or dynamic settlement hazards on the subject property as prepared by a geotechnical professional(s).

5. Geological assessments shall be prepared, signed, stamped, and dated by the appropriate geotechnical professional(s) (as defined in Chapter 14.15 EMC and established in this chapter) and the format shall be pre-approved by the department.

6. Geological assessments that do not contain the minimum required information will be returned to the geotechnical professional(s) for revision.

7. The department shall review the geological assessment and either:

- a. Accept the geological assessment and approve the application; or
- b. Reject the geological assessment and require revisions or additional information.

8. A geological assessment for a specific site may be valid for a period of up to five years when the proposed land use activity and surrounding site conditions are unchanged. However, if any environmental conditions associated with the site change during that five-year period, the applicant may be required to submit an amendment to the geological assessment. (Ord. 02-200 § 2).

14.90.040 Seismic hazard area standards.

A. Earthquake Induced Landslide Hazard Areas. All standards set forth in Chapter 14.80 EMC shall apply to earthquake induced landslide hazard areas.

B. Liquefaction and/or Dynamic Settlement Hazard Areas.

1. All building structures shall conform to the standards set forth in EMC Title 15, Buildings and Construction.

~~Chapter 14.90 SEISMIC (EARTHQUAKE) HAZARD AREAS~~

2. Utility Lines. Utility lines, except for gas pipelines, which are prohibited, will be permitted when no other conveyance alternative is available. The line shall be located above ground and properly anchored and/or designed so that it will continue to function in the event of seismically induced ground deformation. Provision for automatic shut-off of utilities in a ground-rupturing event will be required.

3. Roads, Bridges, and Trails. Roads, bridges, and trails shall be allowed when mitigation measures are provided that ensure the roadway prism and/or bridge structure will not be susceptible to damage from seismic induced ground deformation. Mitigation measures shall be designed for static and seismic loading conditions in accordance with the most recent version of the American Association of State Highway and Transportation Officials (AASHTO) Manual and also for an estimated range of ground surface offset presented in the geotechnical report.

C. Fault Rupture Hazard Areas. Any development, encroachment, filling, grading, or building structures shall be prohibited within fault rupture hazard areas and associated buffers except as specified in the following standards:

1. Utility Lines. Utility lines, except for gas pipelines, which are prohibited, will be permitted when no other conveyance alternative is available. The line shall be located above ground and properly anchored and/or designed so that it will continue to function in the event of seismically-induced ground deformation. Provision for automatic shutoff of utilities in a ground-rupturing event will be required.

2. Roads, Bridges, and Trails. Roads, bridges, and trails shall be allowed when all of the following conditions have been met:

a. Mitigation measures are provided that ensure the roadway prism and/or bridge structure will not be susceptible to damage from seismically-induced ground deformation. Mitigation measures shall be designed for static and seismic loading conditions in accordance with the most recent version of the American Association of State Highway and Transportation Officials (AASHTO) Manual and also for an estimated range of ground surface offset presented in the geotechnical report.

b. The road is not a sole access for a development. (Ord. 02-200 § 2).

14.90.050 Buffer requirements.

A. Determining Buffer Widths.

1. The buffer width shall be measured on a horizontal plane from a perpendicular line established at the edge of the fault rupture hazard area limits.

2. A buffer is an area that is adjacent to a fault rupture hazard area that may be potentially subject to ground surface displacement in a future earthquake. No development shall be permitted within a fault rupture hazard area and its associated buffer. The required buffer width is the greater amount of the following distances:

a. Fifty feet from all edges of a fault rupture hazard area, except for high occupancy or essential facilities, where the minimum buffer distance shall be 100 feet; or

b. The required buffer width is the minimum distance recommended by the geotechnical professional(s).

B. Modification of Buffer Widths. The Department may require a larger buffer width than the buffer distance, as determined in subsection (A) of this section, if the department determines the standard or proposed buffer is not adequate to protect the health, safety, or welfare of any proposed development. (Ord. 02-200 § 2).

14.90.060 Appendices.

A. Geological Assessments – Liquefaction or Dynamic Settlement Hazard Areas.

B. Geological Assessments – Fault Rupture Hazard Area Geotechnical Report.

APPENDIX A

GEOLOGICAL ASSESSMENTS – LIQUEFACTION OR DYNAMIC SETTLEMENT HAZARD AREAS

~~Chapter 14.80 SEISMIC (EARTHQUAKE) HAZARD AREAS~~

Article I. Geotechnical Verification

A. A geotechnical verification shall, at a minimum, include the following:

1. The general critical areas report requirements in EMC 14.10.082.
2. The geotechnical verification shall include all mandatory items listed in EMC 14.90.030(B)(4).
3. The geological assessment must include a determination that no liquefaction and/or dynamic settlement hazard exists within the proposed project area.
4. The verification shall include an accurate site plan drawn at a scale of one inch equals 20 feet, one inch equals 30 feet, one inch equals 50 feet (or other scale deemed appropriate by the department) is required. The department may require that the site plan information be based on a field survey by a licensed surveyor. The site plan shall include:
 - a. Property lines for the site, and the location of any existing structures.
 - b. The full geographical limits of the proposed project area or conceptual project area (i.e., area to be developed) and the location of any proposed structures, on-site septic systems, wells, and stormwater management features or facilities associated with the development, if known.

B. The geotechnical professional(s) who prepared the geotechnical verification shall stamp the verification with his or her license stamp/seal.

C. Hold harmless clauses, disclaimers, and limitations are not allowed within a geotechnical verification.

Article II Geotechnical Report

A. A geotechnical report shall, at a minimum, include the following:

1. The general critical areas report requirements in EMC 14.10.082.
2. The document shall include all mandatory items listed in EMC 14.90.030(B)(4). The report shall be prepared by an engineer and shall be co-written by an engineering geologist where geological interpretations and conclusions critical to the assessment of liquefaction and/or dynamic settlement hazard and potential effects are necessary or prudent. The report shall specify the desired performance level of the structures and other development facilities (e.g., safety to building occupants, minimal damage to structure, post-earthquake serviceability for pre-earthquake operations, no damage, etc.).
3. The results, conclusions, and recommendations resulting from the geological assessment of the liquefaction and/or dynamic settlement hazards on the subject property as prepared by the geotechnical professional(s).
4. The geological assessment-geotechnical report shall include:
 - a. A statement that the proposed project area falls within a liquefaction and/or dynamic settlement hazard area.
 - b. A detailed engineering evaluation of expected ground displacements or other liquefaction and/or dynamic settlement effects (e.g., bearing failures, flotation of buried tanks, etc.) and proposed mitigation measures to ensure an acceptable level of risk for the proposed structure type or other development facilities, as well as the proposed land use type (i.e., occupancy category). The minimum level of acceptable risk for any proposed structure or development facility shall ensure the life safety of any occupant. Where appropriate, a range of mitigation options should be considered depending on site conditions, the intended use of the structures, and acceptable levels of settlement.
5. The report shall include a site plan drawn to scale. The department may require that the site plan information be based on a field survey by a licensed surveyor. The site plan shall include:

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- a. Property lines for the site and the location of any existing structures.
- b. The limits/location of any liquefaction and/or dynamic settlement hazard area(s) as set forth in EMC 14.90.020(C)(2).
- c. The full geographical limits of the proposed project area or conceptual project area (i.e., area to be developed) and the location of any proposed structures, on-site septic systems, wells, and stormwater management features or facilities associated with the development, if known.
- d. Location and unique identifier of geotechnical explorations used to characterize subsurface conditions.

6. The geotechnical study shall include field exploration sufficient to assess the potential for liquefaction or dynamic settlement hazards and options for mitigation of those hazards. Copies of the exploration logs shall be provided in the report. The geotechnical study shall include field exploration sufficient to assess the potential for liquefaction or dynamic settlement hazards and options for mitigation of those hazards. Copies of the exploration logs shall be included in the report. The project geotechnical professional must provide justification for the scope of the field exploration program. The City's geotechnical professional reserves the right to request additional exploration if deemed appropriate. If a dispute arises between the City's geotechnical professional and the project geotechnical professional regarding the scope of the field exploration, the City reserves the right to require an independent, third party review to be paid for by the applicant to resolve the dispute.

7. If beneficial to the assessment of seismic hazards for the project, the three-dimensional subsurface conditions at the site shall be presented using one or more cross-sections showing location and depth penetration of borings or CPT soundings, interpretation of the geometry of major soil units, and projected location of the static groundwater surface determined from the subsurface exploration. The cross-sections shall be presented at a scale of one inch equals 20 feet, one inch equals 30 feet, one inch equals 50 feet (or other scale deemed appropriate by the department). Each cross-section shall have a legend with a description of the various major soil units. The City's geotechnical professional reserves the right to request inclusion of one or more cross sections in the geotechnical report. If a dispute arises between the project geotechnical professional and the City's geotechnical professional regarding this issue, then the City reserves the right to require an independent, third party review to be paid for by the applicant to resolve the dispute.

8. All assessments of liquefaction and/or dynamic settlement hazards and effects will be based on a design earthquake using ground motion parameters consistent and equivalent to those specified in the most current version of the International Building Code. These assessments shall use the shallowest groundwater table observed during or inferred from subsurface exploration and characterization (e.g., the measured depth of static groundwater immediately prior to abandonment of borings, observation of iron-oxide mottling of soils samples, etc.).

9. Results of laboratory testing of samples retrieved during drilling and sampling shall be presented in order to support the values of fines contents used in subsequent analysis of liquefaction and/or dynamic settlement hazard. Where only CPT methods are used in site assessment, the correlation between fines content and CPT measurements will be discussed and documented. This documentation will require rigorous correlation of CPT and fines content measurements from similar geological deposits within the Puget Sound region.

10. The geotechnical report shall include a detailed assessment of the liquefaction and/or dynamic settlement hazard based on analysis of available subsurface data using state-of-the-practice methodologies. The results of the analysis shall be documented, and all results of intermediate and final calculations and results, including factors of safety, shall be included.

11. When appropriate, the geotechnical report shall include an assessment of the potential for large lateral spreads or flow failures, bearing failures, settlement, limited lateral displacement, and flotation of buried facilities. The methodologies used must be, at a minimum, state-of-the-practice, and the conclusions regarding the potential and severity of the possible liquefaction and/or dynamic settlement induced failure modes shall be presented.

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12. Alternative mitigative measures including structural and foundation design options and/or soil improvement techniques shall be evaluated and compared for their effectiveness in reaching the level of performance specified in the report introduction. Effectiveness of soil improvement techniques shall be specified in terms of post-treatment densification or strength improvement as measured by appropriate subsurface investigation and testing. The extent of the post-treatment verification testing shall be provided on a site map at the same scale as the map presented in subsection (A)(4) of this article. Geotechnical review of all final plans is required and the findings of the review shall be documented in writing.

B. The geotechnical professional(s) who prepared the geotechnical report shall stamp the report with his or her license stamp/seal.

C. Hold harmless clauses, disclaimers, and limitations are not allowed within a geotechnical report.

APPENDIX B

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GEOLOGICAL ASSESSMENTS – FAULT RUPTURE HAZARD AREA GEOTECHNICAL REPORT

A. A geotechnical report shall, at a minimum, include the following:

1. The general critical areas report requirements in EMC 14.10.082.
2. The document shall include all mandatory items listed in EMC 14.90.030(B)(4). The report shall be prepared by an engineer and shall be co-written by an engineering geologist where geological interpretations and conclusions critical to the assessment of liquefaction and/or dynamic settlement hazard and potential effects are necessary or prudent.
3. The following topics should be considered and addressed in detail where essential to support opinions, conclusions, and recommendations in any geologic report on faults. It is not expected that all the topics or investigative methods would be necessary in a single investigation. In specific cases, it may be necessary to extend some of the investigative methods well beyond the site or property being investigated.
 - a. Purpose and scope of investigation; description of proposed development.
 - b. Geologic and tectonic setting. Include seismicity and earthquake history.
 - c. Site description and conditions, including dates of site visits and observations. Include information on geologic units, graded and filled areas, vegetation, existing structures, and other factors that may affect the choice of investigative methods and interpretation of data.
 - d. Methods of Investigation.
 - i. Review of published and unpublished literature, maps, and records concerning geologic units, faults, groundwater barriers, and other factors.
 - ii. Stereoscopic interpretation of aerial photographs, review of LiDAR based topography, and other remotely sensed images to detect fault-related topography (geomorphic features), vegetation and soil contrasts, and other lineaments of possible fault origin. The area interpreted usually should extend beyond the site boundaries.
 - iii. Surface observations, including mapping of geologic and soil units, geologic structures, geomorphic features and surfaces, springs, deformation of engineered structures due to fault creep, both on and beyond the site.
 - iv. Subsurface Investigations.

(A) Trenching and other excavations to permit detailed and direct observation of continuously exposed geologic units, soils, and structures; must be of adequate depth and be carefully logged (Taylor & Cluff 1973, Hatheway & Leighton 1979, McCalpin 1996b).

~~Chapter 14.80 SEISMIC (EARTHQUAKE) HAZARD AREAS~~

(B) Borings and test pits to permit collection of data on geologic units and groundwater at specific locations. Data points must be sufficient in number and spaced adequately to permit valid correlations and interpretations.

(C) Cone penetrometer testing (CPT) (Grant et al., 1997, Edelman et al., 1996). CPT must be done in conjunction with continuously logged borings to correlate CPT results with on-site materials. The number of borings and spacing of CPT soundings should be sufficient to adequately image site stratigraphy. The existence and location of a fault based on CPT data are interpretative.

v. Geophysical Investigations. These are indirect methods that require a knowledge of specific geologic conditions for reliable interpretations. They should seldom, if ever, be employed alone without knowledge of the geology (Chase & Chapman 1976). Geophysical methods alone never prove the absence of a fault nor do they identify the recency of activity. The types of equipment and techniques used should be described and supporting data presented (California Board of Registration for Geologists and Geophysicists, 1993).

(A) High-resolution seismic reflection (Stephenson et al., 1995, McCalpin, 1996b).

(B) Ground penetrating radar (Cai et al., 1996).

(C) Other methods include: seismic refraction, magnetic profiling, electrical resistivity, and gravity (McCalpin, 1996b).

vi. Age-dating techniques are essential for determining the ages of geologic units, soils, and surfaces that bracket the time(s) of faulting (Pierce 1986, Birkeland et al., 1991, Rutter & Catto, 1995, McCalpin, 1996a).

(A) Radiometric dating (especially ¹⁴C).

(B) Soil-profile development.

(C) Rock and mineral weathering.

(D) Landform development.

(E) Stratigraphic correlation of rocks/minerals/fossils.

(F) Other methods – artifacts, historical records, tephrochronology, fault scarp modeling, thermoluminescence, lichenometry, paleomagnetism, dendrochronology, etc.

vii. Other methods should be included when special conditions permit or requirements for critical structures demand a more intensive investigation.

(A) Aerial reconnaissance overflights.

(B) Geodetic and strain measurements.

(C) Microseismicity monitoring.

e. Conclusions.

i. Location and existence (or absence) of hazardous faults on or adjacent to the site; ages of past rupture events.

ii. Type of faults and nature of anticipated offset, including sense and magnitude of displacement, if possible.

iii. Distribution of primary and secondary faulting (fault zone width) and fault-related deformation.

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iv. Probability of, or relative potential for, future surface displacement. The likelihood of future ground rupture seldom can be stated mathematically, but may be stated in semiquantitative terms such as low, moderate, or high, or in terms of slip rates determined for specific fault segments.

v. Degree of confidence in, and limitations of data and conclusions.

f. Recommendations.

i. The recommended increase from the standard buffer distance (50 feet) of proposed structures from fault rupture hazard areas. The recommended buffer distance generally will depend on the quality of data and type and complexity of fault(s) encountered at the site and the proposed land use type (i.e., occupancy). In order to establish an appropriate buffer distance from a fault located by indirect or interpretative methods (e.g., borings or cone penetrometer testing), the area between data points also should be considered underlain by a fault unless additional data are used to more precisely locate the fault. Additional measures (e.g., strengthened foundations, engineering design, and flexible utility connections) to accommodate warping and distributive deformation associated with faulting (Lazarte and others, 1994).

ii. Risk evaluation relative to the proposed development.

iii. Limitations of the investigation; need for additional studies.

g. References.

i. Literature and records cited or reviewed; citations should be complete.

ii. Aerial photographs or images interpreted – list type, data, scale, source, and index numbers.

iii. Other sources of information, including well records, personal communications, and other data sources.

h. Illustrations. The following illustrations should be provided:

i. A location map that identifies site locality, significant faults, geographic features, regional geology, seismic epicenters, and other pertinent data; 1:24,000 scale is recommended.

ii. A site development map that shows site boundaries, existing and proposed structures and limits of the proposed project area, graded areas, streets, exploratory trenches, borings geophysical traverses, locations of faults, and other data; recommended scale is 1:2,400 (one inch equals 200 feet), or larger.

iii. A geologic map that shows the distribution of geologic units (if more than one), faults and other structures, geomorphic features, aerial photographic lineaments, and springs; on topographic map 1:24,000 scale or larger; can be combined with subsection (B)(h)(i) or (ii) of this appendix.

iv. Geologic cross-sections, if needed, to provide three-dimensional picture.

v. Logs of exploratory trenches and borings that show details of observed features and conditions (note: these should not be generalized or diagrammatic). Trench logs should show topographic profile and geologic structure at a 1:1 horizontal to vertical scale; scale should be 1:60 (one inch equals five feet) or larger.

vi. Geophysical data and geologic interpretations.

i. Appendix. Attach any supporting data not included above (e.g., water well data, photographs, aerial photographs).

4. The geotechnical professional who prepared the geotechnical shall stamp the report with his or her license stamp/seal.

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5. The department may request a geotechnical professional to provide additional information in the geotechnical report based upon existing conditions, changed conditions, or unique circumstances occurring on a case-by-case basis.

6. Hold harmless clauses, disclaimers, and limitations are not allowed to be included, neither expressly nor implied, within a geological assessment. (Ord. 02-200 § 2).

Chapter 14.110

EROSION HAZARD AREAS

Sections:

- 14.110.010 Purpose.
- 14.110.020 Erosion hazard areas.
- 14.110.030 Erosion hazard area review procedures.
- 14.110.040 Erosion hazard area standards.
- 14.110.050 Buffer requirements.
- 14.110.060 Appendices.

14.110.010 Purpose.

The following statements describe the purpose of this chapter:

- A. Protect human life and health;
- B. Regulate uses of land in order to avoid damage to structures and property being developed and damage to neighboring land and structures;
- C. Identify and map erosion hazard areas;
- D. Minimize impacts on wetlands and critical fish and wildlife species and their associated habitat that can result from erosion;
- E. Establish a permit requirement and review procedures for development proposals in areas with potential erosion hazards;
- F. Strike a balance between the need to maintain natural shoreline erosion/regression processes and the need to protect existing and proposed development. (Ord. 02-200 § 2).

14.110.020 Erosion hazard areas.

A. Shoreline Erosion Hazard Indicators. Shoreline erosion hazard areas are areas potentially subject to land regression or retreat due to a combination of geologic, seismic, and/or hydrologic or manmade factors. Shoreline hazard areas can be identified by indicators of active land retreat as a result of fluvial processes.

B. Erosion Hazard Area Categories.

1. Potential Erosion Hazard Areas. Potential erosion hazard areas, as depicted on the Geologically Hazardous Areas map, are those areas where the suspected risk of erosion through either loss of soil, slope instability, or land regression is sufficient to require additional review to assess the potential for active erosion activity or apply additional standards. These potential erosion hazard areas are determined using the following criteria:

- a. Shoreline Erosion Hazard Areas. Areas within 200 feet of a freshwater (lake, pond, or shoreline) as measured landward perpendicularly from the edge of the ordinary high water mark.
- b. Riverine Erosion Hazard Areas. The rivers subject to regulation as a channel migration zone listed in EMC 14.70.020(B)(4).
- c. Soil Erosion Hazard Areas. Areas identified as having slopes of 20 percent or greater and that are classified as having severe, or very severe erosion potential by the Soil Conservation Service, United States Department of Agriculture (USDA).

2. Active Shoreline Erosion Hazard Areas. Land areas located directly adjacent to surface water bodies that, through the geological assessment process, are identified as regressing, retreating, or potentially unstable as a result of undercutting by wave action or bluff erosion. The limits of the active shoreline erosion hazard area

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shall extend landward to include that land area that is calculated, based on the rate of regression, to be subject to erosion processes within the next 10-year time period.

3. Riverine Erosion Hazard Areas. Riverine erosion hazard areas are located within the lateral extent of likely watercourse channel movement due to bank destabilization and erosion, rapid incision, and shifts in location of watercourse channels. Riverine erosion hazard areas are also referred to as channel migration zones (CMZs). Rivers and streams subject to erosion are regulated as a CMZ as listed in EMC 14.70.020(B)(4).

4. Soil Erosion Hazard Areas. Soil erosion hazard areas are identified by the presence or absence of natural vegetative cover, soil texture condition, slope, and rainfall patterns, or man-induced changes to such characteristics that create site conditions which are vulnerable to erosion of the upper soil horizon. Soil erosion hazard areas include those areas with slopes of 20 percent or greater and that are classified as having severe, or very severe erosion potential by the USDA Natural Resources Conservation Service. (Ord. 02-200 § 2).

14.110.030 Erosion hazard area review procedures.**A. General Requirements.**

1. The City's Geologically Hazardous Areas map provides an indication of where potential erosion hazard areas are located. The actual presence or location of an erosion hazard area and/or additional potential erosion hazard area that have not been mapped, but may be present on or adjacent to a site, shall be determined using the procedures and criteria established in this chapter.
2. The department will complete a review of the Geologically Hazardous Areas map, and any other source documents for any proposed regulated activity to determine whether the site for the regulated activity is located within a potential erosion hazard area.
3. When the department's maps, sources, or field investigations indicate that the site for a proposed regulated activity is located within a potential shoreline erosion hazard area, the department shall require a geological assessment as outlined in subsection (B) of this section.
4. When the department's maps, sources, or field investigations indicate that the proposed project area for a regulated activity is located within a potential riverine erosion hazard area (channel migration zone), the department shall conduct a review pursuant to the requirements set forth in EMC 14.70.030. All standards set forth in Chapter 14.70 EMC shall apply to riverine erosion hazard areas (CMZs).
5. When the department's maps, sources, or field investigations indicate that the proposed project area for a regulated activity is located within a potential soil erosion hazard area, the department shall require submittal of an erosion control plan pursuant to the requirements set forth in EMC Title 15, Buildings and Construction.
6. Applicants requesting to develop a bulkhead along a shoreline shall be required to submit a geotechnical report. The geotechnical report shall comply with the requirements established in EMC 14.110.060, Appendix C.
7. Unless otherwise stated in this chapter, the critical area protective measure provisions contained in EMC 14.10.080 shall apply.

B. Geological Assessment. A geological assessment is a site investigation process to evaluate the on-site geology affecting a subject property and proposed development.

1. Geological assessments shall be submitted to the department for review and approval together with a shoreline erosion hazard area application.
2. The geological assessment shall include a field investigation and may also include review of public records and documentation, analysis of historical air photos, LiDAR mapping, published data and references, etc.
3. The geological assessment shall include the following information and analysis:

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a. An analysis of the shoreline erosion processes on and in the vicinity of the site including an evaluation of erosion and shoreline retreat that has occurred over the past decade and an estimated probable rate of erosion based upon the historic rate of erosion that has occurred on the site.

b. A determination of which areas on the site meet the criteria for an active shoreline erosion hazard area as set forth in EMC 14.110.020(B)(2).

c. A determination of the area on the site or in the vicinity of the site that will experience regression in the next 120 years given natural processes.

4. Geological assessments shall be prepared, signed, and dated by a geotechnical professional (as defined in Chapter 14.15 EMC and established in this chapter) and the format shall be pre-approved by the department.

5. A geotechnical professional shall complete a field investigation and geological assessment to determine whether or not an active shoreline erosion hazard area exists within 200 feet of the site.

a. The geological assessment shall be submitted in the form of a geotechnical letter when the geotechnical professional finds that no active shoreline erosion hazard area exists within 200 feet of the site. The geotechnical letter shall meet the requirements contained in EMC 14.110.060, Appendix A.

b. The geological assessment shall be submitted in the form of geotechnical verification when the geotechnical professional finds that an active shoreline erosion hazard area exists but is located more than 200 feet away from the proposed project area. The geotechnical verification shall meet the requirements contained in EMC 14.110.060, Appendix B.

c. The geological assessment shall be submitted in the form of a geotechnical report when the geotechnical professional finds that an active shoreline erosion hazard area exists within 200 feet of the proposed project area or when a geotechnical professional determines that mitigation measures, such as a bulkhead, are necessary in order to construct or develop within a potential shoreline erosion hazard area. The geotechnical report shall meet the requirements contained in EMC 14.110.060, Appendix C.

6. The department shall review the geological assessment and either:

a. Accept the geological assessment and approve the application; or

b. Reject the geological assessment and require revisions or additional information.

7. A geological assessment for a specific site may be valid for a period of up to five years when the proposed land use activity and surrounding site conditions are unchanged. However, if any environmental conditions associated with the site change during that five-year period, the applicant may be required to submit an amendment to the geological assessment.

C. Riverine Erosion Hazard Area (Channel Migration Zones) Review. Riverine erosion hazard areas shall be reviewed pursuant to the requirements set forth in EMC 14.70.030.

D. Soil Erosion Hazard Area Review. Soil erosion hazard areas shall be reviewed pursuant to the requirements set forth in EMC Title 15, Buildings and Construction. (Ord. 02-200 § 2).

14.110.040 Erosion hazard area standards.

A. Active Shoreline Erosion Hazard Areas. Any development, encroachment, filling, clearing, or grading, timber harvest, building structures, impervious surfaces, and vegetation removal shall be prohibited within active shoreline erosion hazard areas and associated buffers except as specified in the following standards:

1. Shoreline Erosion Protection Measures. Shoreline erosion protection measures located within or adjacent to freshwater or marine shorelines shall be allowed subject to the following:

a. The proposed shoreline protection measure shall comply with the standards set forth in Chapter 14.40 EMC, Fish and Wildlife Habitat Conservation Areas.

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- b. A geological assessment-shoreline erosion geotechnical report has been conducted in accordance with the provisions set forth in EMC 14.110.030(B) that indicates that the shoreline is currently experiencing active erosion (i.e., land retreat or regression).
- c. The use of the shoreline erosion protection measure will not cause a significant adverse impact on adjacent properties or critical fish and wildlife species and their associated habitat (i.e., increase erosion on adjacent properties).
- d. The use of soft armoring techniques (soil bioengineering erosion control measures) is the preferred method for shoreline protection.
- e. Hard armoring shoreline erosion control measures shall be approved only when a geological assessment-shoreline erosion geotechnical report, as set forth in EMC 14.110.030(B), has been completed and indicates the following:
 - i. The regression has been monitored on a yearly interval for a period of at least five consecutive years prior to allowing a bulkhead to be constructed. This monitoring shall be conducted by field survey measurements of a licensed surveyor. The department may shorten or eliminate the monitoring period if there are indicators that the regression rate is rapid and an existing structure may be threatened prior to completion of the monitoring period;
 - ii. The use of beach nourishment alone or in combination with soft armoring techniques is not adequate to protect the property from shoreline erosion processes; and
 - iii. The property contains an existing structure(s) that will be threatened within the next 10 years or the buildability of an undeveloped site will be threatened within the next 10 years if a hard armoring method of shoreline erosion protection is not provided.
- f. Hard armoring shoreline protection measures shall not be allowed when structures can be located landward of the 120-year rate of regression area.

2. Stormwater Conveyance. Surface drainage into an active shoreline erosion hazard area should be avoided. If there are no other alternatives for discharge, then drainage must be collected upland of the top of the active shoreline erosion hazard area and directed downhill in a high density polyethylene stormwater pipe with fuse welded joints that includes an energy dissipating device at the base of the active landslide hazard area. The pipe shall be located on the surface of the ground and be properly anchored so that it will continue to function in the event of an underlying slide. The number of these pipes should be minimized along the slope frontage.

3. Utility Lines. Utility lines will be permitted when no other conveyance alternative is available. The line shall be located above ground and properly anchored and/or designed so that it will continue to function in the event of an underlying slide.

4. Roads, Bridges, and Trails. Roads, bridges, and trails shall be allowed when all of the following conditions have been met:

- a. Mitigation measures are provided that ensure the roadway prism and/or bridge structure will not be susceptible to damage from active erosion.
- b. The road is not a sole access for a development.

B. Shoreline Erosion Hazard Management Area. All regulated activities such as but not limited to building structures, impervious surfaces, vegetation removal, timber harvest, and clearing or grading activities may be allowed in areas located within 200 feet of an active shoreline erosion hazard area subject to the following standards:

- 1. The department reviews and approves a geological assessment – shoreline erosion hazard geotechnical report and determines that the proposed project area is located outside an active shoreline hazard area and the required buffer, as set forth in EMC 14.110.050.

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2. The proposed recommendations and mitigation measures contained within the geotechnical report are adequate to reduce or mitigate risks to the natural environment, health, and safety.
3. Surface drainage from the proposed project area, including downspouts, landscape irrigation systems, and runoff from paved or unpaved surfaces upland of the shoreline, shall not be directed through an active shoreline erosion hazard area or its associated buffer unless it is conveyed in conformance with the provisions in subsection (A)(2) of this section.
4. Stormwater retention and detention systems, such as dry wells and infiltration systems utilizing buried pipe or french drains, shall not be permitted unless such systems are designed by a professional engineer and the geotechnical report indicates that such a system will not affect the stability of the shoreline.
5. Proposed developments, with the exception of shoreline erosion protection measures, shall be sited far enough from regressing shorelines to ensure 120 years of useful life for any proposed structures or infrastructure.

C. Riverine Erosion Hazard Area (Channel Migration Zones) Review. Riverine erosion hazard areas shall be reviewed pursuant to the requirements set forth in EMC 14.70.030.

D. Soil Erosion Hazard Area Review. Soil erosion hazard areas shall be reviewed pursuant to the requirements set forth in EMC Title 15, Buildings and Construction. (Ord. 02-200 § 2).

14.110.050 Buffer requirements.**A. Determining Buffer Widths.**

1. The buffer width shall be measured on a horizontal plane from a perpendicular line established at the edge of the active shoreline erosion hazard area limits.
2. An undisturbed buffer of existing vegetation shall be required for an active shoreline erosion hazard area. The required standard buffer width is the greatest amount of the distances in EMC 14.110.050(A)(2)(a) and (b):
 - a. Fifty feet from all edges of the active shoreline erosion hazard area limits;
 - b. A distance of one-third the height of the slope at the top of the slope and a distance of one-half the height at the bottom of the slope; or
 - c. The buffer width may be reduced below the widths specified in EMC 14.110.050(A)(2)(a) and (b) or eliminated upon approval by the Department of a geotechnical report that demonstrates that such a reduction would not result in an increased risk of erosion either on or off of the subject property.

B. Modification of Buffer Widths. The department may require a larger buffer width than the standard buffer distance, as determined in subsection (A) of this section, if any of the following are identified through the geological assessment process:

1. The adjacent land is susceptible to severe erosion and erosion control measures will not effectively prevent adverse impacts.
2. The area has a severe risk of slope failure or downslope stormwater drainage impacts. (Ord. 02-200 § 2).

14.110.060 Appendices.

- A. Geological Assessment – Shoreline Erosion Hazard Geotechnical Letter.
- B. Geological Assessment – Shoreline Erosion Hazard Geotechnical Verification.
- C. Geological Assessment – Shoreline Erosion Hazard Geotechnical Report.

APPENDIX A**Formatted: Centered**

GEOLOGICAL ASSESSMENT – SHORELINE EROSION HAZARD GEOTECHNICAL LETTER

A. A geotechnical letter shall, at a minimum, include the following:

1. The general critical areas report requirements in EMC 14.10.082.
2. A summary of the findings of the site visit, a site plan, and a summary of the findings from the review of documents listed in EMC 14.110.030(B)(2). The appropriate professional preparing the geotechnical letter shall provide conclusions and recommendations as to shoreline stability for the proposed development.

B. The geotechnical professional who prepared the geotechnical letter shall stamp the letter with his or her seal.

C. Hold harmless clauses, disclaimers, and limitations are not allowed within a geotechnical letter.

APPENDIX B

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GEOLOGICAL ASSESSMENT – SHORELINE EROSION HAZARD GEOTECHNICAL VERIFICATION

A. A geotechnical verification shall, at a minimum, include the following:

1. The general critical areas report requirements in EMC 14.10.082.
2. A summary of the results, conclusions, and recommendations resulting from the geological assessment, as set forth in EMC 14.110.030(B). The verification will also include a summary of the findings of the site visit, a site plan, and a summary of the findings from the review of the documents listed in EMC 14.110.030(B)(2).
3. An accurate site plan drawn at a scale of one inch equals 20 feet, one inch equals 30 feet, one inch equals 50 feet (or other scale deemed appropriate by the department) is required. The department may require that the site plan information listed below be based on a field survey by a licensed surveyor. The site plan shall include:
 - a. The limits/location of the active shoreline erosion hazard area(s) set forth in EMC 14.110.020(B)(2).
 - b. The limits of the required shoreline erosion hazard buffer based upon the requirements set forth in EMC 14.110.050(A).
 - c. The limits/location of the shoreline erosion hazard management area.
 - d. The limits/location of the 120-year regression area.
 - e. The location of any existing structures, utilities, on-site septic systems, wells, and stormwater management facilities.
 - f. The location of any proposed structures, utilities, on-site septic systems, wells, and stormwater management facilities.
 - g. The full geographical limits of the proposed project area (area to be developed).
 - h. Dimension of the closest distance between the identified active shoreline hazard area boundary and the proposed project area.
 - i. Dimension of the closest distance between the 120-year regression line and the proposed project area.
 - j. Existing contours on the site at two-foot intervals.
 - k. Property lines for the site.
 - l. North arrow and scale.

B. The geotechnical professional who prepared the geotechnical verification shall stamp the verification with his or her seal.

C. Hold harmless clauses, disclaimers, and limitations are not allowed within a geotechnical verification.

APPENDIX C

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GEOLOGICAL ASSESSMENT – SHORELINE EROSION HAZARD GEOTECHNICAL REPORT

A. A geotechnical report shall, at a minimum, include the following:

1. The general critical areas report requirements in EMC 14.10.082.
2. A summary of the results, conclusions, and recommendations resulting from the geological assessment, as set forth in EMC 14.110.030(B). The report will also include a summary of the findings of the site visit, a site plan, and a summary of the findings from the review of documents listed in EMC 14.110.030(B)(2). The summary shall specifically address:
 - a. Whether it is possible given the physical constraints of the property (size, shape, building setbacks, utility requirements, etc.) to locate the proposed development outside of the 120-year area of regression based on natural shoreline processes.
 - b. If it is not possible to locate the development outside of the 120-year area of regression (based on natural processes), determine whether beach nourishment and/or soft armoring techniques can be used to slow the rate of regression such that the proposed development is no longer within the 120-year regression area.
 - c. If it is not possible to locate the development outside of the 120-year area of regression (based on the use of beach nourishment and/or soft armoring techniques), outline the strategy, as set forth in EMC 14.110.040(A)(1), to monitor the rate of regression on the site.
 - d. Determine whether any proposed shoreline erosion protection measures will cause an increase in the rate of regression on neighboring properties.
3. An accurate site plan drawn at a scale of one inch equals 20 feet, one inch equals 30 feet, one inch equals 50 feet (or other scale deemed appropriate by the department) is required. The department may require that the site plan information listed below be based on a field survey by a licensed surveyor. The site plan shall include:
 - a. The limits/location of the active shoreline erosion hazard area(s) set forth in EMC 14.110.020(B)(2).
 - b. The limits of the required shoreline erosion hazard buffer based upon the requirements set forth in EMC 14.110.050(A).
 - c. The limits/location of the shoreline erosion hazard management area.
 - d. The limits/location of the 120-year regression area based on natural shoreline processes and, if applicable, based upon proposed shoreline protection measures.
 - e. The location of any existing structures, utilities, on-site septic systems, wells, and stormwater management facilities.
 - f. The location of any proposed structures, utilities, on-site septic systems, wells, and stormwater management facilities.
 - g. The full geographical limits of the proposed project area (area to be developed).
 - h. Dimension of the closest distance between the identified active shoreline hazard area boundary and the proposed project area.

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- i. Dimension of the closest distance between the 120-year regression line and the proposed project area.
- j. Existing contours on the site at two-foot intervals.
- k. Property lines for the site.
- l. North arrow and scale.

4. A discussion of any proposed shoreline protection measures including design and construction drawings is required.

5. A list of references utilized in preparation of the report.

B. The geotechnical professional(s) who performed the geological assessment shall stamp the report with his or her license stamp/seal. The report must be co-authored by a licensed professional engineer when engineering designs or interpretations are necessary to address the report requirements. The engineer must also stamp the report with his or her license stamp/seal.

C. The department may request a geotechnical professional to provide additional information in the geotechnical report based upon existing conditions, changed conditions, or unique circumstances occurring on a case-by-case basis.

D. Hold harmless clauses, disclaimers, and limitations are not allowed within a geotechnical report.

E. Geotechnical reports shall be in conformance with a format that is pre-approved by the department. (Ord. 02-200 § 2).

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Chapter 14.500**NATURAL RESOURCE LANDS**

Sections:

- 14.500.010 Purpose.
- 14.500.020 Intent.
- 14.500.030 Applicability.
- 14.500.031 Mineral resource lands designation.
- 14.500.040 Natural resource lands noticing requirements.
- 14.500.050 Current use assessment.
- 14.500.060 Variances and appeals.
- 14.500.070 Review process.
- 14.500.080 Title, plat, and regulated activities notification.
- 14.500.090 Permitted uses.
- 14.500.100 Appendices.

14.500.010 Purpose.

This chapter establishes requirements and regulations to protect natural resource lands and is established pursuant to WAC 197-11-908 and RCW 36.70A.170 and 36.70A.060. The city therefore designates agricultural lands and mineral resource lands, and all associated buffers as being environmentally sensitive areas and designated natural resource lands. By regulating development within 500 feet of natural resource lands, this title seeks to implement the following goals and policies to:

- A. Inform the public of the existence, location and potential incompatibility impacts of development on, or within 500 feet of, these environmentally sensitive areas within the city.
- B. Encourage the retention of open space, development of recreational opportunities, conserve priority habitat, increase access to natural resource lands and water, and develop parks.
- C. Assure the conservation of resource lands and related activities by limiting encroachment of incompatible development thereon.
- D. Promote the conservation of mineral resource lands through inclusion of known deposits of minerals and materials.
- E. Assure that undeveloped mineral and material resources will not be forever lost by prior development of the land for other purposes.
- F. Allow for the necessary mineral processing to convert such minerals and materials into marketable products.
- G. Protect the environment and enhance the state's high quality of life, including air and water quality and the availability of water.
- H. Maintain and enhance the biological and physical functions and values of wetlands. (Ord. 02-200 § 2).

14.500.020 Intent.

Resource lands are of special concern to the citizens, the city, and the state. The intent of this chapter is to conserve resource lands by establishing standards for development of sites which contain, or are within 500 feet of, resource lands to promote the public health, safety, and welfare by:

- A. Noticing of property on, or within, natural resource land areas;
- B. Mitigating unavoidable impacts by regulating development;
- C. Protecting from development impacts;

Chapter 14.500 NATURAL RESOURCE LANDS**D. Protecting the public against losses from:**

1. Costs of public emergency rescue and relief operations where the causes are avoidable;
2. Degradation of the natural environment and the expense associated with repair or replacement;

E. Preventing adverse impacts on water availability, water quality, wetlands, and streams;**F. Protecting unique, fragile, and valuable elements of the environment, including fish and wildlife habitat;****G. Providing sufficient information to show that critical areas are adequately protected prior to approving, conditioning, or denying public or private development activity;****H. Providing the public with sufficient information and notice of potential risks associated with development in critical and sensitive areas;****I. Implementing the goals and requirements of the Growth Management Act (RCW 36.70A.060), the city of Edgewood comprehensive plan, and all updates and amendments, functional plans, and other land use policies formally adopted or accepted by the city. (Ord. 02-200 § 2).****14.500.030 Applicability.**

This chapter shall apply to all properties designated as resource lands (agricultural lands or mineral resource lands) or properties within 500 feet of designated resource lands within Edgewood. When the requirements of this title are more stringent than those of other local, state or federal law, codes, or regulations, the requirements of this title shall apply.

A. Agricultural Lands. Lands that are not already characterized by urban growth and that have long-term significance for the commercial production of food or other agricultural products. Agricultural lands are those lands meeting all of the following criteria:

1. Lands in parcels which are 10 acres or larger in size;
2. Lands which are on prime or unique soils as identified in:
 - a. United States Department of Agriculture (USDA), Soil Conservation Service, February 1979, Soil Survey of Pierce County Area, Washington; or
 - b. USDA, Soil Conservation Service, June 1981, Important Farmlands of Pierce County, Washington;
 - c. Lands which are primarily devoted to the commercial production of horticultural, viticultural, floricultural, dairy, apiary, vegetable, or animal products or of berries, grain, hay, straw, turf, seed, Christmas trees not subject to the excise tax imposed by RCW 84.33.100 through 84.33.140, or livestock, and which have long-term commercial significance for agricultural production; and
 - d. Lands which are not within 500 feet of lots of record of one acre or less on more than 50 percent of the perimeter of the parcel.

B. Mineral Resource Lands. Mineral resource lands shall be identified by the city using the criteria set forth in WAC 365-190-070 as now exists or as may hereafter be amended or modified.**C. Property Adjacent to Resource Lands. All plats, short plats, development permits, and building permits issued for development activities within 500 feet of lands designated as natural resource lands shall contain a notice that a variety of commercial activities may occur that are not compatible with residential development for certain periods of limited duration. (Ord. 04-221 § 1; Ord. 02-200 § 2).****14.500.031 Mineral resource lands designation.****A. The city has classified the following areas as potential mineral resource lands based on the criteria in EMC 14.500.030(B).**

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1. Parcels: 0420164023, 0420164024, 0420164016 (commonly known as Olson); and
2. Parcels: 0420162047, 0420162048 (commonly known as Josties); and
3. Parcels: 0420084072, 0420084002, 0420084005, 0420084069, 0420084068, 0420171073, 0420171057, 0420171000, 0420171059 (commonly known as Fife Sand and Gravel).

B. The city staff shall study each area and prepare a written analysis of each area.

C. The city council's land use and economic development committee shall review the staff analysis and either send the analysis back to staff for clarification or recommend approval/denial of each area as a mineral resource land to the city council. The staff analysis and land use and economic development committee's recommendation shall be forwarded to the city council for review and action.

D. The city council shall review the staff analysis and recommendation(s) of the land use committee and shall, by ordinance, approve, deny or modify the particular study area designation using the criteria in EMC 14.500.050(B). (Ord. 04-234 § 1).

14.500.040 Natural resource lands noticing requirements.

Pursuant to RCW 36.70A.060, the city shall require that all plats, development applications, or permits issued for development activities on, abutting, or within 500 feet of lands designated as natural resource lands contain a notice (see Appendices A through C).

A. General. If more than one natural resource land subject to the provisions of this title intersects the subject parcel, then one notice addressing all of the natural resource areas shall be sufficient.

B. Title Notification.

1. When the city determines that activities not exempt from this title are proposed, the owner shall file a notice with the Pierce County auditor (Appendices A through C). The notice shall provide a public record of the presence of the sensitive area(s); the application of this title to the property; and any limitations on activity in or affecting such sensitive area.
2. The notice shall be notarized and recorded with the Pierce County auditor before approval of any regulated use or activity on the site.

C. Plat Notification. For all proposals requiring a plat within sensitive areas, the applicant shall note the face of the plat consistent with the language set forth in Appendices A through C.

D. Permit Notification. The department shall require that all permits issued for regulated activities on or within 500 feet of natural resource lands contain a notice as set forth in Appendices A through C. (Ord. 02-200 § 2).

14.500.050 Current use assessment.

A. An owner of natural resource lands or open space desiring current use classification under Chapter 84.40 RCW may file for such current use classification.

B. An owner of undeveloped land with critical areas which has been placed in a separate tract or tracts, protective easement, public or private land trust dedication, or other similarly preserved area for the protection of these critical areas may have that portion of land reviewed for reassessment by the assessor-treasurer's office consistent with those restrictions to determine the fair market value of the land pursuant to RCW 84.40.030.

C. The owner shall notify the assessor-treasurer's office when restrictions on development occur on a particular site, and shall provide a plat map in addition to the following, or other special study documents as may be required by the department.

14.500.060 Variances and appeals.

Procedures for variances and appeals of an administrative decision issued pursuant to this chapter are set forth in EMC 18.40.090, ~~Process II, Administrative action~~. (Ord. 02-200 § 2).

Commented [cm60]: See my comment earlier on adopting codes which tell the County what to do.

Commented [cm61]: Why is this here? There already is a chapter dealing with variances and appeals.

~~Chapter 14.500 NATURAL RESOURCE LANDS~~**14.500.070 Review process.**

A. The department shall review any permit or application requested for any regulated activity, including, but not limited to, those set forth in EMC 14.500.010 on a site which includes, or is within 500 feet of, one or more resource land is located, unless otherwise provided in this title.

B. As part of all development applications, the department shall review the information submitted by the applicant to:

1. Confirm the nature and type of the resource land and evaluate any required title, plat, and/or regulated activity notification;
2. Determine whether the development proposal is consistent with this title; and
3. Determine whether any proposed alterations to the site containing resource lands are necessary.

C. The city may approve, approve with conditions, or deny any development proposal in order to comply with the requirements and carry out the goals, purposes, objectives, and requirements of this title.

D. Approval of a development proposal does not discharge the obligation of the applicant to comply with the provisions of this title. (Ord. 02-200 § 2).

14.500.080 Title, plat, and regulated activities notification.

A. If more than one resource land subject to the provisions of this title exists on the site, then one notice addressing all of the resource lands shall be sufficient.

B. Notification shall be approved by the department and shall be consistent with the forms set forth in EMC 14.500.100, Appendices A through C as applicable.

C. Title notifications shall be notarized and recorded with the Pierce County auditor prior to approval of any regulated use or activity for the site. (Ord. 02-200 § 2).

14.500.090 Permitted uses.

Uses permitted on designated resource land sites shall be the same as those permitted in the zone classifications shown on the city zoning map. (Ord. 02-200 § 2).

14.500.100 Appendices.

A. Property Adjacent to Resource Lands.

B. Agriculture Lands Noticing.

C. Mineral Resource Lands Noticing.

APPENDIX A

PROPERTY ADJACENT TO RESOURCE LANDS

A. Title Notification.

Parcel Number: _____

Site Address: _____

NOTICE: This parcel lies within 500 feet of land designated resource lands by Edgewood. A variety of commercial and industrial activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of chemicals, or from spraying or extraction which occasionally generates dust, smoke, noise, and odor. The city has established resource uses as priority uses on productive resource lands, and residents of

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Chapter 14.500 NATURAL RESOURCE LANDS

adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary commercial resource lands operations.

Signature of Owner

(NOTARY ACKNOWLEDGMENT)

B. Plat Notification. The owner of any site within 500 feet of land designated as resource lands on which a large lot, short subdivision, or formal subdivision is submitted, shall record a notice on the face of the plat. Such notification shall be in the form as set forth below:

PROPERTY ADJACENT TO RESOURCE LANDS PLAT NOTIFICATION. This property lies within 500 feet of land designated resource lands by Edgewood. A variety of commercial and industrial activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of chemicals, or from spraying or extraction which occasionally generates dust, smoke, noise, and odor. The city has established resource uses as priority uses on productive resource lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary commercial resource lands operations.

C. Regulated Activities Notification. The department shall require that permits issued for regulated activities, as defined in Chapter 14.500 EMC, within 500 feet of lands designated as resource lands, contain a notice as set forth below.

REGULATED ACTIVITIES NOTIFICATION. This property lies within 500 feet of land designated resource lands by Edgewood. A variety of commercial and industrial activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of chemicals, or from spraying or extraction which occasionally generates dust, smoke, noise, and odor. The city has established resource uses as priority uses on productive resource lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary commercial resource lands operations.

APPENDIX B**AGRICULTURAL LANDS NOTICING****A. Title Notification.**

Parcel Number: _____

Site Address: _____

NOTICE: This parcel lies within 500 feet of an area identified as agricultural lands by Edgewood. A variety of commercial agricultural activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of agricultural chemicals, including herbicides, pesticides, and fertilizers; or from spraying, pruning, and harvesting which occasionally generate dust, smoke, noise, and odor. Edgewood has established agriculture as a priority use on productive agricultural lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary farm operations.

Signature of Owner

Chapter 14.500 NATURAL RESOURCE LANDSSignature of Owner
_____(NOTARY ACKNOWLEDGMENT)

B. Plat Notification. The owner of any site within this designation on which a large lot, short subdivision, or formal subdivision is submitted, shall record a notice on the face of the plat. Such notification shall be in the form as set forth below.

AGRICULTURAL LANDS PLAT NOTIFICATION. This parcel lies within an area identified as agricultural lands by Edgewood. A variety of commercial agricultural activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of agricultural chemicals, including herbicides, pesticides, and fertilizers; or from spraying, pruning, and harvesting which occasionally generate dust, smoke, noise, and odor. The city has established agriculture as a priority use on productive agricultural lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary farm operations.

C. Regulated Activities Notification. The department shall require that all permits issued for regulated activities, as defined in Chapter 14.500 EMC, within this zone classification contain a notice as set forth below.

REGULATED ACTIVITIES NOTIFICATION. This parcel lies within 500 feet of an area identified as agricultural lands by Edgewood. A variety of commercial agricultural activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of agricultural chemicals, including herbicides, pesticides, and fertilizers; or from spraying, pruning, and harvesting which occasionally generate dust, smoke, noise, and odor. The city has established agriculture as a priority use on productive agricultural lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary farm operations.

APPENDIX C

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MINERAL RESOURCE LANDS NOTICING

A. Title Notification.

Parcel Number: _____

Site Address: _____

NOTICE: This parcel lies within 500 feet of an area of land designated mineral resource lands by the city. A variety of commercial mineral extraction activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of heavy equipment, chemicals, and spraying which may generate dust, smoke, and noise associated with the extraction of mineral resources. Edgewood has established mineral resource extraction as a priority use on productive mineral resource lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary mineral resource extraction operations.

Signature of Owner
_____(NOTARY ACKNOWLEDGMENT)

B. Plat Notification. The owner of any site within this overlay district on which a large lot, short subdivision, or formal subdivision is submitted, shall record a notice on the face of the plat. Such notification shall be in the form as set forth below:

MINERAL RESOURCE LANDS PLAT NOTIFICATION. This property lies within 500 feet of an area of land designated mineral resource lands by the city of Edgewood. A variety of mineral resource extraction activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of heavy equipment, chemicals, and spraying which may generate dust, smoke, and noise associated with the extraction of mineral resources. Edgewood has established mineral resource extraction as a priority use on productive mineral resource lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary mineral resource extraction lands.

C. Regulated Activities Notification. The department shall require that all permits issued for regulated activities, as defined in Chapter 14.500 EMC, within this designation contain a notice as set forth below:

REGULATED ACTIVITIES NOTIFICATION. This property lies within 500 feet of an area of land designated mineral resource lands by Edgewood. A variety of mineral resource extraction activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of chemicals and extraction of minerals, which occasionally generates dust, smoke, noise, and odor. The city has established mineral resource extraction as a priority use on productive mineral resource lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary mineral resource extraction lands.

(Ord. 02-200 § 2).

–Title 14

CRITICAL AREAS

Chapters:

- 14.10 General Provisions
- 14.1520 Definitions
- 14.2030 Use and Activity Regulations
- 14.3040 Wetlands
- 14.4050 Critical Fish and Wildlife Habitat Areas
- 14.5060 Aquifer Recharge and Wellhead Protection Areas
- 14.6070 Volcanic Hazard Areas
- 14.7080 Flood Hazard Areas
- 14.8090 Landslide Hazard Areas
- 14.90100 Seismic (Earthquake) Hazard Areas
- 14.110 Erosion Hazard Areas
- 14.500120 Natural Resource Lands

Chapter 14.10
GENERAL PROVISIONS

Sections:

14.10. 0100 10	Authority.
14.10. 0300 20	Purpose.
14.10. 0400 30	Interpretation.
14.10. 0500 40	Applicability.
14.10. 0700 50	Administration.
14.10. 0750 60	Relationship to Other Regulations.
14.10. 0800 70	Critical a A rea protective measures.
14.10. 0820 80	Critical a A reas r Reports.
14.10. 0830 90	Mitigation plans.
14.10. 0851 00	Variances to e Critical a A reas .
14.10. 0901 10	Reconsideration and appeal procedures.
14.10. 1001 20	Fees.
14.10. 1101 30	Compliance.
14.10. 1201 40	Warning and disclaimer of liability.
14.10.130	Severability.
14.10.135	Violation Civil infraction.
14.10. 1401 50	Appendix.

14.10.010 Authority.

A. This title is established and adopted pursuant to the Growth Management Act (RCW 36.70A.060).

B. As provided herein, the ~~d~~Director or ~~their his/her~~ designee is given the authority to interpret and apply, and the responsibility to enforce this title ~~to accomplish the purposes~~ the purposes identified in EMC 14.10.030.

14.10.030 Purpose.

~~A.~~ The purpose of this title is to protect ~~environmentally sensitive~~ the eCritical aAreas of Edgewood from the impacts of development ~~Activity and vice versa protect development from the impacts of hazard areas~~ by establishing minimum standards for ~~development~~ Development Activity of on sites ~~which that~~ contain or ~~adjoin are adjacent to identified any eCritical aA~~rea or its Buffer(s) s. Further, the purpose of these regulations is to mitigate the potential hazard(s) to development in and near Critical Areas.

~~B.~~ The purpose is further envisioned to and thus promote the ~~public~~ health, safety, and welfare by:

~~A1.~~ Avoiding impacts to critical areas;

~~B2.~~ Mitigating unavoidable impacts by regulating development;

~~C3.~~ Protecting critical areas from impacts of development;

~~D4.~~ Protecting the public against losses from:

~~1a.~~ Costs of public emergency rescue and relief operations where the causes are avoidable; and

~~2b.~~ Degradation of the natural environment and the expense associated with repair or replacement;

~~E5.~~ Preventing adverse impacts on water availability, water quality, ~~wetland~~ Wetlands, and streams;

~~F6.~~ Protecting unique, fragile, and valuable elements of the environment, including critical Fish and Wildlife Habitat Conservation Areas ~~fish and wildlife habitat~~;

~~G7.~~ Providing ~~d~~Department staff with sufficient information to adequately protect ~~e~~Critical ~~a~~Areas and proposed ~~d~~Development ~~Activity~~ when approving, conditioning, or denying public or private ~~d~~Development proposals;

~~H8.~~ Providing the public with sufficient information and notice of potential risks associated with ~~d~~Development in ~~natural hazard-e~~Critical ~~a~~Areas; and

~~I9.~~ Implementing the goals and requirements of the Growth Management Act (RCW 36.70A.060), ~~the State Environmental Policy Act (SEPA), and the e~~City's of Edgewood comprehensive plan, and all updates, ~~and~~ amendments, functional plans, and other land use policies formally adopted or accepted by the ~~e~~City of Edgewood.

14.10.0430 Interpretation.

~~A.~~ In the interpretation and application of this title, all provisions shall be:

~~A1.~~ Considered the minimum necessary ~~for compliance; and~~

~~B2.~~ Liberally construed to serve the purposes of this title, ~~and~~

~~CB.~~ ~~Nothing contained herein shall be D~~deemed ~~neither~~ to limit ~~nor~~ repeal any other powers under state statute. (Ord. 02-200 § 2).

14.10.035 ——— Best Available Science.

~~Critical area reports and decisions to alter critical areas shall be based on the best available science to protect the functions and values of critical areas and must give special consideration to conservation or protection measures necessary to preserve or enhance anadromous fish, such as salmon and bull trout, and their habitat (WAC 365-195-900).~~

14.10.0540 Applicability.

A. This title shall apply to all lands and waters within Edgewood that are designated as ~~e~~Critical ~~a~~Areas and their corresponding ~~buffer~~Buffers and setbacks.

B. No ~~d~~Development ~~Activity~~ (see “development” definition) shall hereafter take place without full compliance ~~with the terms~~ of this title.

C. When the requirements of this title are more stringent than those of other ~~Edgewood-City~~ codes and regulations, ~~including the adopted International Building Code (EMC 15.05), the requirements of this title shall apply.~~

D. Compliance with these regulations does not remove an applicant’s obligation to comply with applicable provisions of any other federal, state, or local law or regulation.

E. Criteria for determining ~~the presence of a~~ ~~e~~Critical ~~a~~Areas is contained within each chapter of this title.

F. When a site contains two or more ~~e~~Critical ~~a~~Areas, the site shall meet the minimum standards and requirements for each ~~identified critical area as set forth in this title.~~

G. Critical ~~a~~Areas, ~~as defined and regulated by this title,~~ are identified ~~on~~, but ~~may not be~~ limited to, the following Edgewood critical areas maps:

1. Wetlands;
2. Geologically ~~h~~Hazardous ~~a~~Areas;
3. Critical ~~a~~Aquifer ~~r~~Recharge ~~a~~Areas;
4. Streams; and
5. Frequently ~~f~~Flooded ~~a~~Areas.

H. The ~~exact~~ boundary of each ~~mapped eCritical aArea depicted on the City's critical areas maps~~ is approximate and is only intended to provide an indication of the presence of a ~~eCritical aArea~~ on a particular site. Additional ~~eCritical aAreas~~ that have not been mapped may ~~also~~ be present on a site. The actual presence of a ~~eCritical aArea, or areas~~ and the applicability of these regulations shall be determined based upon the ~~eClassification or categorization~~ criteria and review procedures established for each ~~eCritical aArea~~. City staff ~~and/or the City's consultant(s)~~ may ~~request the ability to perform an econduct on-site inspections~~ to assess the site in order to ~~determine advise~~ if additional studies or reports ~~shall be included with any Development Application identified in this title are~~ necessary. An inspection report of findings shall be written after the on-site inspection and will become a part of any ~~site development application as a future reference~~.

I. ~~The Edgewood eCritical aAreas atlas maps~~ shall be updated and maintained by the ~~Departmenteity's department of community development geospatial information system (GIS) division~~.

~~14.10.0750~~ Administration.

A. ~~Critical Areas Permit or Approval Required. In order to conduct any Development Activity on any property located within three hundred (300) feet of a Critical Area, as each Critical Area is defined in this Title or as shown on the City's Critical Areas Map(s), a Critical Areas Permit or an Approval must be obtained from the City.~~

~~B. Critical Areas Approval.~~

~~1. If the City requires that another permit application be submitted under a different code chapter in order to allow the proposed Development Activity, then a separate Critical Areas Permit is not required. Instead, the City shall review the underlying application, together with the application materials required in herein, to determine compliance or noncompliance with this title. The determination on such compliance or noncompliance shall be incorporated within the decision on the underlying application.~~

~~2. In addition to the materials required to make the underlying application complete as required by the City's code outside of this Title, the applicant shall also submit the materials set forth in herein, where the subject property is within three hundred (300) feet of a Critical Area. The City shall not issue a determination that the underlying application is complete until all materials have been submitted.~~

~~3. The process for review of the underlying application and Critical Areas approval shall be the same as the Process to be followed for the underlying application.~~

~~C. Critical Areas Permit.~~

~~1. If the City does not require any other permit in order to allow the proposed Development Activity, the applicant shall be required to obtain a separate Critical Areas Permit in order for the proposed development activity to proceed.~~

~~2. A complete application for a Critical Areas Permit shall consist of the materials set forth in EMC Section 14.10.050.D.~~

~~3. The process for review of a Critical Area Permit is the Type II Process, as set forth within EMC Section 18.40.090.~~

D. Elements of a Complete Permit Application. ~~A complete application for Approval or a Critical Areas Permit under this Title shall consist of the following materials:~~

~~1. A completed permit and approval application form, which must be signed by the record owner of the property (the person(s) whose name is on the most recently recorded deed or contract purchaser with written permission from the record owner). An application form may be signed by an agent for the record owner, as long as the application is also accompanied by a verified statement signed by the record owner, which specifically authorizes the agent to submit the application on the record owner's behalf.~~

~~2. The subject site's street address, legal description, or both items if necessary for property identification;~~

- ~~3. A complete description of the proposed development activity;~~
- ~~4. All items identified in this title that are necessary to complete the application; and~~
- ~~5. The required application fee.~~

~~A. Approvals Required. An approval must be obtained from the city when the department determines that the site or project area is or may be located within 300 feet of a critical area, as set forth in each chapter.~~

~~B. Application Requirements:~~

~~1. Preliminary Review. The provisions for conducting a preliminary review of an application is set forth in EMC 18.40.070; Process types:~~

~~2. Application Filing:~~

~~a. Applications shall be reviewed for completeness in accordance with department submittal standards, checklists and pursuant to EMC 18.40.150, Determination of completeness or as outlined within section e. below: a. Permit Requirements. No separate application or permit is required to conduct regulated activities within a Critical Area or its associated buffer. Review of regulated activities within a critical area and related buffers is subject to the permit processing procedure for the required permit type as defined under EMC 18.40.~~

~~bE. Applications and associated Critical Areas reports shall not be submitted without an accompanying permit aAApplication for an underlying action, such as, but not limited to, a building permit, subdivision or boundary alteration action, site development application, TPCHD permit, or use permit, with the exception of aAApplications required by the departmentDepartment as a result of an enforcement action. or reports required by TPCHD for septic design approval, or associated with a request for under the Pierce County Open Space public benefit rating system Tax Valuation program.~~

~~e. In cases where no accompany permit applications are required for potentially regulated activities within a critical area, a separate critical areas permit application shall be filed and include the following items in order to be deemed a complete application:~~

- ~~i. A completed Critical Area Permit Application;~~
- ~~ii. Submittal and review criteria and standards of this title, as outlined within each section of the specific critical area potentially being impacted;~~
- ~~iii. Associated Critical Area Permit Fee, as outlined within EMC 14.10.100.~~
- ~~iv. Review for a Critical Area Permit shall follow a Type II Process, as outlined within EMC 18.40.0980.~~

~~3F. Modifications. The dDDepartment may request an update of any required assessment, report, or dDelineation, etc., due to the potential for change in the existing environment that may have been caused by a natural event, (e.g., seismic event, landslides, or flooding, etc.) or human induced activity that dDdegraded the existing conditions that occurred after the original document was initially submitted.~~

~~C. Public Notice. Public notice provisions for notice of aAApplication; public hearing, if applicable; and final decision pursuant to this title are outlined in EMC Section 18.40.190, Notice of public hearing.~~

~~D. Review.~~

~~1. Initial Review. The dDDepartment shall conduct an initial review of any aAApplication in accordance with the provisions outlined in EMC Section 18.40.150, Determination of eCCompleteness.~~

~~2. Review Responsibilities.~~

- a. The ~~d~~Department is responsible for administration, circulation, and review of any ~~a~~Applications and approvals required by this title.
- b. ~~The City Council shall be the decision authority for r~~Any Reasonable ~~a~~Use Exception ~~a~~Applications shall follow EMC Section 14.20.050.
- c. Other ~~e~~City or ~~Pierce e~~County departments and state agencies, as determined by the ~~d~~Department, may review an ~~a~~Application and forward their respective recommendations to the ~~d~~Director or ~~a~~Hearing ~~e~~Examiner, as appropriate.

3. Review Process.

- a. The ~~d~~Department shall perform a ~~e~~Critical ~~a~~Area review for any building or land use ~~a~~Application submitted for a regulated activity, including, but not limited to, those set forth in EMC ~~Section 14.230.020, and any non-exempt activity~~. Reviews for multiple ~~e~~Critical ~~a~~Areas shall occur concurrently.
- b. The ~~d~~Department shall, to the extent reasonable, consolidate the processing of related aspects of other ~~e~~City regulatory programs which affect activities in ~~any regulated eCritical aAreas, such as subdivision or site development, with the approval process established herein so as to provide a timely and coordinated review process~~.
- c. As part of the initial review of all ~~development or related approvals or~~ permit ~~a~~Applications, the ~~d~~Department shall review the information ~~submitted by the applicant to~~:
 - i. Confirm the nature and type of the ~~e~~Critical ~~a~~Area and evaluate ~~whether~~ any ~~required~~ assessments, reports, or studies ~~are required~~;
 - ii. Determine whether the development proposal is consistent with this title;
 - iii. Determine whether any proposed alterations to the site containing ~~e~~Critical ~~a~~Areas are necessary; and
 - iv. Determine if the mitigation and monitoring plans ~~proposed-submitted~~ by the applicant are sufficient to protect the public health, safety, and welfare consistent with the goals, purposes, objectives, and requirements of this title.
- d. Regulated ~~a~~Activities subject to SEPA shall also be reviewed with consideration for impacts on ~~e~~Critical ~~a~~Areas as identified in this title. Regulated ~~a~~Activities that pose a significant adverse impact which are not addressed by the standards and criteria established in this title ~~(gaps)~~, may be subject to additional mitigation measures as determined through the SEPA process. A threshold determination issued pursuant to EMC Title 20, ~~SEPA~~, may not be made prior to ~~the d~~Department's ~~a~~ review of any special studies or technical reports required by this title, except where the applicant requests a declaration of significance so that environmental review is required.
- d. Critical ~~a~~Areas ~~a~~Applications required under this title shall be approved prior to approval of any underlying permit action ~~such as, but not limited to, a building permit, subdivision approval, site-development forest practice application, or identified use permit~~.
- e. ~~The Department may waive T~~he requirement to submit a ~~e~~Critical ~~a~~Area ~~Report assessment, report, etc., required under this title, outlined within each critical area heading herein, may be waived at the department's discretion~~ when the proposed project area for a regulated activity is located in an area that has been the subject of a previously submitted and approved assessment ~~or, report, etc.~~, if all of the following conditions have been met:
 - i. The provisions of this title have been previously addressed as part of another approval;
 - ii. There has been no material change in the potential impact to the ~~e~~Critical ~~a~~Area or required ~~buffer~~Buffer since the prior review;

iii. There is no new information available that is applicable to any critical review of the site or particular eCritical aArea;

iv. The permit or approval has not expired or, if there is no expiration date, no more than five years have elapsed since the issuance of that permit or approval; and

v. Compliance with any standards or conditions placed upon the prior permit or approval has been achieved or secured.

4. Burden of Proof. The applicant has the burden of proving that a proposed aApplication complies with the standards set forth in this title.

5. Final Decision.

a. The dDepartment may approve, approve with conditions, or deny ~~any critical any eCritical aAreas~~ aApplications or underlying aApplications for development ~~within any eCritical aArea in order to comply with the requirements and carry out the goals, purposes, objectives, and requirements of this title based on the decision makers' evaluation of the ability of any proposed mitigation measures to reduce risks associated with the critical area and compliance with required standards.~~ Approval of a development proposal does not discharge the obligation of the applicant to comply with the provisions of this title.

b. Applicants shall comply with the recommendations and/or mitigation measures contained in final approved assessments or reports and any final decision and conditions of approval.

c. Approval of an aApplication required under this title must be given prior to the start of any development activity on a site.

6. Time Period for Final Decision. The provisions for issuing a notice of final decision on any aApplication filed pursuant to this title is set forth in EMC Section 18.40.040, Coordination of development permit procedures.

E. Time Limitations.

1. Expiration of Approval.

a. Approvals granted under this title shall be valid for the same time period as the underlying permit ~~(e.g., preliminary plat, site development, building permit)~~. If the underlying permit does not contain a specified expiration date, then approvals granted under this title shall be valid for a period of three (3) years from the date of issue, unless a longer or shorter period is specified in the final decision.

b. The approval shall be considered null and void upon expiration, unless a time extension is requested and granted as set forth in ~~EMC subSection 14.10.050.E.2 (E)(2) of this section.~~

2. Time Extensions.

a. The applicant or owner(s) may request in writing a one-time, one-year extension of the original approval. ~~To receive the extension, the applicant must upon demonstrating to the Director that circumstances beyond their control of the Applicant dictated the need for the extension. The extension would set a new expiration date one year later than the initial expiration.~~

b. Knowledge of the expiration date and initiation of a request for a time extension is the responsibility of the applicant or owner(s).

c. A written request for a time extension shall be filed with the dDepartment at least ~~sixty (60)~~ days prior to the expiration of the approval.

d. Upon filing of a written request for a time extension, a copy shall be sent to each party of record together with governmental departments or agencies that were involved in the original approval process.

By letter, the ~~d~~Department shall request written comments be delivered to the ~~department~~Department within 30 days of the date of the letter.

e. Prior to the granting of a time extension, the ~~d~~Department may require a new ~~a~~Application(s), updated study(ies), and fee(s) if:

- i. The original intent of the approval is altered or enlarged by the renewal;
- ii. The circumstances relevant to the review and issuance of the original approval have changed substantially; or
- iii. The applicant failed to abide by the terms of the original approval.

~~f. If approved, the one-year time extension shall be calculated from the date of granting said approval.~~

F. Recording.

1. Approvals.

a. ~~Critical-a~~Area regulation-a approvals to modify a Critical Area or which otherwise require mitigation and or monitoring shall be ~~are to be~~ recorded on the title of the project parcel(s) at the Pierce County auditor's office by City of Edgewood Staff prior to issuance of any permit authorizing the project to proceed and at the sole expense of Applicant. ~~Also refer to-~~

b. EMC Section 14.10.070.F80(F), Title and Land Division Notification ~~contains, for-~~ additional recording requirements.

~~bc. Work within a recorded, existing utility easement is not required to meet EMC Section 14.10.050.F.1.a. Recording of a wetland approval for work completed within utility line easements on lands not owned by the jurisdiction conducting the regulated activity shall be required.~~

2. Right of Entry Agreement.

a. ~~When an Application has been submitted, the City shall have a right of entry to verify the submitted information is correct; to ensure any applicable condition(s) of approval were satisfied; to confirm any required monitoring is being performed; or to attest that all outstanding items subject to a performance bond were completed.~~

b. ~~The right of entry shall extend until the last condition in the permit has been satisfied.~~

~~The city may require the applicant to record a right of entry agreement, which shall be consistent with a format approved by the department. The right of entry agreement shall:~~

- a. ~~Allow the department and agents of the department to access the site for purposes of inspection during the course of application review, construction, and post-construction monitoring.~~
- b. ~~Allow the department and agents of the department to enter a property to construct required improvements, mitigation measures, or monitoring that have been financially guaranteed.~~
- c. ~~Run with the land, and be binding on all parties having or acquiring any right, title, interest, or any part thereof of the site, including the grantor, heirs, successors, and assigns. (Ord. 02-200 § 2).~~

14.10.07560 Relationship to Other Regulations

A. This title shall apply ~~as an overlay and~~ in addition to zoning and other regulations adopted by the City ~~and concurrently with review conducted under SEPA.~~

~~B. These critical areas regulations shall apply concurrently with review conducted under SEPA, as adopted under Chapter EMC 20.05.~~

~~C. Compliance with the provisions of this title does not constitute compliance with other federal, state, and local regulations and permit requirements that may be required (for example, Hydraulic Permit Act [HPA] permits,~~

~~Section 106 of the National Historic Preservation Act, U.S. Army Corps of Engineers Section 404 permits, National Pollution Discharge Elimination System permits).~~ The applicant is responsible for complying with all other these requirements, apart from the process established in this title.

~~DC.~~ Regulated aActivities that may impact eCritical aAreas ~~and/or~~ their bufferBuffers, but do not require any other City permits or approvals, may be reviewed as a eCritical aAreas pPermit, ~~as outlined within EMC 14.10.070 (c).~~

14.10.0870 Critical aArea protective measures.

A. General. All eCritical aArea tracts, eConservation eEasements, land trust dedications, and other similarly preserved areas shall remain undeveloped in perpetuity, except as they may be allowed to be altered pursuant to this title.

1. Conservation Easements and other similarly preserved areas restrict both the current use as well as future uses of the land to some important conservation quality such as habitat preservation, open space, or scenic views.

2. A land trust or governmental entity that manages properties for long-term goals typically holds the Conservation Easement or other similarly preserved area.

B. Mitigation Sequence. Adverse impacts caused by new activities and developments shall be mitigated using the following action(s) in order of priority:

1. Avoiding the impact altogether by not taking a certain action or parts of an action;
2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps, such as project redesign, relocation, or timing, to avoid or reduce impacts;
3. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
4. Reducing or eliminating the impact over time by preservation and maintenance operations;
5. Compensating for the impact by replacing, enhancing, or providing substitute resources or environments;
and
6. Monitoring the impact and the compensation project and taking appropriate corrective measures.

C. Identification of Critical Areas and Required Buffers on Construction Plans. Critical aAreas and required bufferBuffers shall be clearly identified on all construction plans ~~such as, but not limited to, site development plans, residential building plans, commercial building plans, forest harvest plans, etc.~~

D. Building Setbacks.

1. Unless otherwise provided in this title, buildings and other structures shall be set back a distance of 15 feet from the edge of all eCritical aArea bufferBuffers or, where no bufferBuffers are required, the edge of the eCritical aArea.
2. The following uses and activities may be allowed in the building setback area:
 - a. Landscaping;
 - b. Uncovered decks;
 - c. Building overhangs extending if such overhangs do not extend more than 18 inches or less into less into the setback area;
 - d. Impervious ground surfaces, such as driveways, parking lots, roads, walkways, and patios; provided, that such improvements conform to the water quality standards set forth in the city's adopted stormwater

management manual and that construction equipment does not enter the ~~buffer~~Buffer during the construction process; ~~and~~

e. Clearing and ~~g~~G grading; or

f. Any combination of items a-e. (Ord. 02-200 § 2).

~~§~~ 3. All other uses and activities not listed in EMC Section 14.10.070.D.2.a-e are prohibited.

E. Financial Guarantees.

1. The ~~e~~City may require an applicant to submit one or more financial guarantees, e.g., surety bond, cash escrow, cash set aside, assignment of funds, or letter of credit, to the city, as set forth in each chapter of this title (and other titles of Edgewood's Municipal Code as required), to guarantee any performance, mitigation, maintenance, or monitoring required as a condition of permit approval. The approval for the project will not be granted until the financial guarantee is received by the ~~d~~Department. Projects where the ~~e~~City or one of its departments is the applicant shall not be required to post a financial guarantee.

2. Financial guarantee instruments required under this title shall be:

a. In addition to any other site development guarantees required for project approval;

b. Submitted on financial guarantee forms approved by the city;

c. In the amount of 125 percent of the City Engineer's estimate of the cost of mitigation or monitoring to allow for inflation and administration should the city have to complete the mitigation or monitoring, ~~unless the provisions set forth in subsection (B)(2)(D) of this section are applicable;~~ and

d. Released by the ~~e~~City only when the applicant's appropriate technical professional has provided written confirmation that the performance, mitigation, or monitoring requirements have been met and the ~~d~~Department ~~staff~~, or its agent, inspected the site(s) for compliance.

3. Failure to complete any performance, mitigation, or monitoring may result in the forfeiture or release of the guarantee. Applicants who have previously defaulted will no longer be allowed to post a "bond" guarantee for improvements necessary for approval of a land use ~~a~~Application. Applicants who have previously defaulted will be allowed to post cash guarantees for subsequent ~~e~~Critical ~~a~~Area ~~m~~Mitigation work needed for approval of a land use ~~a~~Application or permit, but the guarantee must be by cash guarantee only.

F. Title and Land Division Notification.

1. General.

a. Title ~~and/or~~ land division notice(s) shall be required to be recorded with the Pierce County auditor on each site that contains a ~~e~~Critical ~~a~~Area, prior to at the time of approval of any regulated activity on a site.

b. If more than one ~~e~~Critical ~~a~~Area subject to the provisions of this title exists on the site, then one notice which addresses all of the ~~e~~Critical ~~a~~Areas ~~shall may~~ be sufficient.

c. Title ~~and/or~~ land division notifications and notes shall be approved by the ~~d~~Department and shall be consistent with EMC Section 14.10.17040, Appendix A.

d. Applicant shall be responsible for the recording costs of the notice.

e. Notice on title is not required for utility line easements on lands not owned by the jurisdiction conducting the regulated activity, e.g., gas pipelines.

2. Title Notification.

a. When the city determines that regulated activities not exempt from this title are proposed, the property owner shall file a notice with the Pierce County auditor. The notice shall provide a public record of the presence of a critical area and associated buffer, if applicable; the application of this title to the property; and that limitations on actions in or affecting such critical area and associated buffer, if applicable, may exist.

b. The notice shall be notarized and shall be recorded by the City at the applicant's cost with the Pierce County auditor at the time of, but prior to approval of any regulated use or activity for the site.

c. Notice on title is not required for utility line easements on lands not owned by the jurisdiction conducting the regulated activity (e.g., gas pipelines).

32. Land Division Notification and Notes. As referenced in EMC 14.10.17040, Appendix A there shall be notes included on the face of any final plat, final binding site plan, short plat, or boundary line adjustment that contain any eCritical aAreas or critical area bufferBuffers. The eCritical aArea boundaries and the boundary of any associated bufferBuffers shall be identified on the face of these documents prior to submission to the City for approval.

G. Conservation Easements.

1. Prior to any final eCritical aArea approval, the part of the eCritical aArea and required bufferBuffer which is located on the site shall be protected with a eConservation eEasement or other similar permanent deed restriction.

2. The eConservation eEasement shall indicate allowable and prohibited uses within the eCritical aArea and required bufferBuffer.

H. Tracts. Critical Area tracts must adhere to the provisions in EMC Section 16.01.100 and the face of the plat shall include the requirement that the owners of all lots shall be required to preserve, protect, and maintain the Critical Areas.

Prior to final approval of any subdivisions, short subdivisions, large lot divisions, or binding site plans, the part of the critical area and required buffer which is located on the site, shall be placed in a separate tract or tracts, and the face of the plat shall include the requirement that the owners of all lots shall be required to preserve, protect and maintain the critical areas.

I. Homeowner's Covenants.

1. A description of the eCritical aArea and required bufferBuffer shall be placed in any required homeowner's covenants to provide notice to the Hhomeowners of their responsibility to preserve, protect, and maintain the eCritical aAreas in perpetuity.

2. Such covenants shall contain a detailed description of the allowable uses within the eCritical aArea and, if applicable, associated bufferBuffer and long-term management and maintenance requirements of the eCritical aArea.

J. Markers, Fencing, and Signage.

1. Markers.

a. Prior to final approval of any eCritical aAreas aApplication, the outer edge of the eCritical aAreas boundaries or, if applicable, required bufferBuffer boundaries on the site shall be flagged by the qualified professional, as outlined in each chapter.

b. These boundaries shall then be identified with permanent markers (rebar and cap permanent markers) and flagged by a licensed surveyor, unless otherwise stated in this title. The permanent markers shall be clearly visible, durable, and permanently affixed to the ground.

Commented [JM1]: Need to update or remove 14.10.080(E) reference in 16.01.100.

2. Fencing.

a. Temporary Construction Fencing.

~~i.~~ Temporary fencing is required when vegetation is to be retained in an undisturbed condition within the ~~eCritical aA~~Area and required ~~bufferBuffer~~.

~~ii. When temporary fencing is requiredIn such cases,~~ the applicant ~~shallwill be required to~~ construct silt fencing, construction fencing, or other ~~eCity~~-approved method of temporary fencing at the edge of the ~~eCritical aA~~Area or, ~~if applicable,~~ the edge of the required ~~bufferBuffer~~ prior to beginning construction on the site.

b. Permanent Fencing. Where deemed necessary by the ~~dD~~Department to provide protection to the ~~eCritical aA~~Area, the applicant will be required to construct permanent, wildlife-passable fencing along the ~~bufferBuffer~~ boundary.

3. Signage.

a. The ~~dD~~Department shall require permanent signage to be installed at the edge of the ~~eCritical aA~~Area or, ~~if applicable,~~ the edge of the required ~~bufferBuffer~~.

b. The sign shall indicate the type of ~~eCritical aA~~Area and if the area is to remain in a natural condition as permanent open space.

c. Exact sign locations, wording, size, and design specifications shall be established by the ~~dD~~Department.

~~d. Required-s~~Signage shall be clearly visible, durable, and permanently affixed to the ground.

~~ed.~~ Prior to final approval of any ~~eCritical aA~~Area ~~aA~~Application, the applicant shall submit an affidavit of posting to the ~~dD~~Department as proof that the required signs were posted on the site.

14.120.0820 Critical ~~aA~~Areas ~~r~~Reports.

A. ~~When required in accordance with this title,~~ The applicant shall submit a ~~eCritical aA~~Areas report ~~as required per this Title.~~

B. The ~~eCritical aA~~Areas report shall use scientifically valid methods and studies in the analysis of ~~eCritical aA~~Area data and field reconnaissance to evaluate the proposed development and all probably impacts to ~~eCritical aA~~Areas in accordance with the provisions of this title. The report shall reference the source(s) of science used in accordance with WAC 365-195-900 through WAC 365-195-925.

C. At a minimum the report shall contain the following ~~ten (10) items:~~

~~1.~~ The name and contact information of the applicant;

~~1-2.~~ ~~and a A~~ description of the proposal;

~~2-3.~~ The site plan for the proposed development, including a map drawn to scale depicting ~~eCritical aA~~Areas, ~~bufferBuffers~~, the proposed development, and any areas to be cleared or altered;

~~3-4.~~ The date of the report and names and qualifications of the persons preparing the report;

~~4-5.~~ Documentation of any fieldwork performed on the site;

~~5-6.~~ Identification and characterization of all ~~eCritical aA~~Areas and ~~bufferBuffers~~ on and adjacent to the proposed development;

~~6-7.~~ A statement specifying the accuracy of the report, and all assumptions made and relied upon;

~~7.8.~~ A discussion of the performance standards applicable to the eCritical aArea and proposed development;

~~8.9.~~ A mitigation plan in accordance with EMC ~~Section 14.10.09083,~~ if mitigation is required; and

~~9.10.~~ Any additional report information required for the eCritical aArea as specified ~~herein the following chapters.~~

14.120.08390 Mitigation plans.

~~A.~~ When mitigation is required, the applicant shall submit a mitigation plan.

~~B.~~ The mitigation plan shall include all of the following ~~details outlined in paragraphs 1-6:~~

1. Mitigation sequencing. A description of reasonable efforts made to apply mitigation sequencing pursuant to EMC ~~Section 14.10.070.B 080(B)~~ to avoid, minimize, and mitigate impacts to eCritical aAreas and ~~bufferBuffers~~.
2. Mitigation details.
 - a. A description of the anticipated impacts to the eCritical aArea and ~~bufferBuffer~~, including impacts to eCritical aArea functions and values;
 - b. ~~The mitigating actions proposed, including:~~ type of mitigation proposed, (e.g., on-site or off-site); site selection criteria; identification of compensation goals; and identification of eCritical aArea functions.
 - c. The environmental goals and objectives of the mitigation, together with specific measurable criteria and performance standards for evaluating whether or not the goals and objectives of the mitigation project have been successfully attained;
 - d. A review of the ~~bBest aA~~ available sScience supporting the proposed mitigation; and
 - e. An analysis of the likelihood of success of the mitigation project.
3. Construction details. The mitigation plan shall include written specifications, descriptions, and drawings of the mitigation proposed, including:
 - a. Construction sequence, timing, and duration;
 - b. Grading and excavation details;
 - c. Erosion and sediment control features; and
 - d. Planting plan specifying plant species, quantities, locations, size, spacing, density, and measures to protect and maintain plants until established. All plant species must be native to the region.
4. Monitoring details.
 - a. A program for monitoring construction and assessing the outcome of the mitigation project, including the schedule for site monitoring (for example, monitoring shall occur in year 1, 3, and 5 after site construction), and how the monitoring data will be evaluated to determine if the performance standards are being met. Monitoring reports shall be submitted to document milestones, successes, problems, and contingency actions of the compensation project. The mitigation project shall be monitored for a period necessary to establish that performance standards have been met, but not for a period less than five (5) years. Mitigation monitoring shall be the responsibility of the applicant.
 - b. A contingency plan with courses of action and corrective measures to be taken if monitoring or evaluation indicates project performance standards are not being met.

5. Mitigation Cost Estimate. A Mitigation Cost Estimate for the entire eCompensatory mMitigation project, per the requirements of EMC Section 14.10.070.E80(E).
6. Other requirements. The mitigation plan shall address any additional mitigation requirements relevant to the specific eCritical aArea as specified in the following chapters.

14.10.085100 Variances to eCritical aAreas.

A. General. Variances are reviewed pursuant to the same permit process as a general variance. -permit type- as outlined inwith EMC Chapter 18.40. and 18.50.080. The criteria for approval for a Critical Area Variances are contained herein, and are not subject to the criteria for general variances contained in EMC 18.50.080(D)(2)- EMC, EMC 18.50.080, Variances. Conditions may be attached to any eCritical aArea(s) variance, which will serve to meet the goals, objectives, and policies of this title.

B. Variance Criteria. A variance may be granted from the requirements of this chapter only if the decision maker makes written findings that the applicant has demonstrated that the requested action conforms to all of the criteria set forth as follows:

1. Special conditions and circumstances exist that are peculiar to the land, the lot, or something inherent in the land, and that are not applicable to other lands in the same district; and
2. The special conditions and circumstances do not result from the actions of the applicant; and
3. A literal interpretation of the provisions of this title would deprive the applicant of all reasonable economic uses and privileges permitted to other properties in the vicinity and zone of the subject property under the terms of this title, and the variance requested is the minimum necessary to provide the applicant with such rights; and
4. Granting the variance requested will not confer on the applicant any special privilege that is denied by this title to other lands, structures, or buildings under similar circumstances; and
5. The granting of the variance is consistent with the general purpose and intent of this title, and will not further degrade the functions or values of the associated eCritical aAreas or otherwise be materially detrimental to the public welfare or injurious to the property or improvements in the vicinity of the subject property; and
6. The decision to grant the variance ~~incorporates~~ the bBest aAvailable sScience and gives special consideration to conservation or protection measures necessary to preserve or enhance anadromous fish habitat; and
7. The granting of the variance is consistent with the general purpose and intent of the Edgewood Comprehensive Plan and adopted development regulations.

C. Additional Criteria for Flood Hazard Area Variances. Refer to EMC Chapter 14.80 – Flood Hazard Areas for specific criteria. In addition to the variance criteria specified above in subsection (B) of this section, in order for the decision maker to approve a flood hazard variance, the decision maker must make written findings that the applicant has demonstrated, that the proposal satisfies all of the following:-

1. Generally, the only condition under which a variance from the elevation standard may be issued is for nNew eConstruction and sSubstantial iImprovements to be erected on a small or irregularly shaped lot contiguous to and surrounded by lots with existing structures constructed below the bBase fFlood level. As the lot size increases the technical justification required for issuing the variance increases.
2. Variances shall not be issued within a designated floodwayFloodway if any increase in flood levels during the bBase fFlood discharge would result.
3. Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
4. Variances shall only be issued upon:

- a. A showing of good and sufficient cause;
- b. A determination that failure to grant the variance would result in exceptional hardship to the applicant and that the hardship was not created by the applicant;
- c. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.

5. Variances as interpreted in the National Flood Insurance Program are based on the general zoning law principle that they pertain to a physical piece of property; they are not personal in nature and do not pertain to the structure, its inhabitants, economic or financial circumstances. They primarily address small lots in densely populated residential neighborhoods. As such, variances from flood elevations should be quite rare.

6. Variances may be issued for nonresidential buildings in very limited circumstances to allow a lesser degree of flood proofing than watertight or dry flood proofing, where it can be determined that such action will have low damage potential, complies with all other variance criteria (except 4.4-1), and otherwise complies with Sections 5.1-1, 5.1-3, and 5.1-4 of the General Standards.

7. Any applicant to whom a variance is granted shall be given written notice that the permitted structure will be built with its lowest floor below the base flood elevation and that the cost of flood insurance will be commensurate with the increased risk.

D. Should a variance be denied, the applicant may submit an Reasonable Use Exception Application for a reasonable use exception pursuant to EMC 14.20.050. (Ord. 17-492 § 2 (Exh. A); Ord. 02-200 § 2).

14.10.090110 Reconsideration and appeal procedures.

Procedures for appeal of a final decision on a eCritical aAreas permit, a decision relating to eCritical aAreas in the underlying permit, a eCritical aAreas variance, or a eCritical aAreas flood hazard variance are set forth in EMC Chapter 18.40.

14.10.100120 Fees.

A. Fees for aApplications and/or reviews of reports, studies, or plans filed pursuant to this title are set forth in the adopted fee schedule and as identified hereinbelow.

AB. Fee Establishment. The eCity, by resolution, shall establish fees for filing of eCritical aArea review processing and other services provided by the eCity as required by this title. These fees shall be based on the anticipated sum of direct costs incurred by the city for any individual development or action and may be established as a sliding scale that will recover all of the city costs. Basis for these fees shall include, but not be limited to, the cost of engineering and planning review time, cost of inspection time, costs for administration, and any other special costs attributable to the critical area review process.

BC. Applicant Responsibilities. Unless otherwise indicated in this title, the applicant shall be responsible for the initiation, preparation, submission, and expense of all required reports, assessment(s), studies, plans, reconnaissance(s), peer review(s) by qualified consultants, and other work prepared in support of or necessary to review the aApplication. For those items initiated by the City, e.g., per review(s), the applicant is responsible for the expense and both the preparation and submission of the application materials and not initiation of the review or preparation of the package submitted to the respective Peer Reviewer.

C. Fee Schedule. The director is charged with the responsibility of collecting appropriate fees charged to applicants for any permits or discretionary approval processes provided for in this title. The amount of the fees charged shall be as established by resolution or ordinance of the city council filed in the office of the city clerk and may be, from time to time, changed without amendment to this title.

D. Payment. Fees established in accordance with this title shall be paid upon submission of a signed aApplication or petition for appeal, or as otherwise provided by any fee ordinance or resolution adopted by the eCity eCouncil. - Where such an application will require substantial review time or expenditures, the mayor may, at his/her sole

Commented [JM2]: Fixing references to Model Ordinance Sections, routing to relevant sections of EMC.
5.1-1: Anchoring → 14.80.050 C.6.c
5.1-3: Utilities → 14.80.050 C.9
5.1-4: Subdivision Proposals → 15.10.150 D, moving to 14.80...

~~discretion, direct that the department initiating the permit request to reimburse the community development department for some or all of costs expended for the application review.~~

E. Investigation Fee. To investigate ~~v~~Violations of this title, all city fees associated with investigation of ~~v~~Violations of this title may be assessed at the adopted billable staff hour rate in addition to any required consultant costs, legal costs, and other expenses necessary to complete the investigation of the ~~v~~Violation. The payment of such investigation fees shall not exempt any person from compliance with all other provisions of this title, nor from penalties prescribed by law.

14.10.1430 Compliance.

A. The regulations for compliance with the provisions of this title are set forth in EMC Section 18.30.040, Scope and compliance.

B. When a ~~e~~Critical ~~a~~Area or its required ~~buffer~~Buffer has been altered in ~~v~~Violation of this title, the ~~d~~Department shall require the property owner to bring the site into compliance. The property owner shall be required to submit the appropriate ~~e~~Critical ~~a~~Areas ~~a~~Application and commence a departmental review, as applicable for each chapter of this title. In addition to any required site investigation, ~~d~~Delineations, assessments, ~~or~~ reports, ~~etc.~~, the property owner shall be required to submit a ~~r~~Restoration plan that identifies the proposed mitigation to bring the subject property into compliance with the requirements of this title. (Ord. 02-200 § 2).

14.10.1240 Warning and disclaimer of liability.

A. The degree of protection required through application of this title is deemed to be reasonable for regulatory purposes and is based on ~~b~~Best ~~a~~Available ~~s~~Science; however, natural events that may exceed the geographic boundaries regulated under this title can and will occur, (e.g., flood heights that are higher than anticipated). This title does not ~~mean to~~ imply that land outside designated hazard areas or uses permitted within such areas will be free from damages.

B. The express purpose of this title is to provide for the health, safety and welfare of the general public, and not to protect individuals or create or otherwise establish or designate any particular class or group of persons who will or should be especially protected or benefitted by the terms of this title. The obligation of complying with the requirements of this title and the liability for failing to do so is hereby placed upon the property owner and/or persons responsible for the condition of the property, buildings or premises.

C. Nothing in this title is intended to be nor shall be construed to create or form the basis for any liability on the part of the City, its officers, officials, employees or agents, for any injury or damage resulting from the failure of the owner of property or land to comply with the provisions of this title or by reason or in consequence of any inspection, notice, order, certificate, permission or approval, authorized or issued or done in connection with the implementation or enforcement of this title, or by reason of any action or inaction on the part of the City, related in any manner to the enforcement of the title by its officers, officials, employees or agents.

14.10.1450 Appendix.

A. Title and Plat Notification Forms.

APPENDIX A

TITLE AND PLAT NOTIFICATION FORMS

A. Notice for Title Notification.

1. ~~(Example: Appropriate Critical Area from EMC 14.10.030)~~

Tax Parcel Number:

Address:

The Edgewood Municipal Code (EMC)
~~(Critical Areas Ordinance Update 20187)~~

Legal Description:

Present Owner:

NOTICE: This property contains [identify Critical Area, (e.g., wetlandWetlands or wetlandWetland bufferBuffers)] as defined by EMC Title 14.10.030. The site was the subject of a development proposal for _____ application number [insert case file number] filed on _____({insert date}). Restrictions on use or alteration of the site may exist due to natural conditions of the property and resulting regulations. Review of such application has provided information on the location of the [identify Critical Area, e.g., Wetlands or Wetland Buffers] (e.g., wetland or wetland buffers) and any restriction on use.

Date _____ Signature of owner _____

Notary acknowledgment and notary seal

B. Additional Title Notification Statements.

1. Title notification for liquefaction and dynamic settlement hazard areas shall include a statement of the performance criteria, (i.e., protection of life safety only, provision for minimal structural damage so that post-earthquake functionality is substantially unchanged, no structural damage for the design earthquake).
2. Title notification for fault rupture hazard areas shall include a statement that a fault rupture hazard area or associated bufferBuffer exists on the site. The title notification shall include a site plan of the subject property with the fault rupture hazard area and associated bufferBuffer identified.
3. Properties that contain flood hHazard aAreas pursuant to EMC Chapter 14.8070 EMC shall include the following statement:
4. Flood Elevation Certificates are kept on file by the dDepartment.

C. Notice for Plat Notification/Plat Notes.

1. General. The following notice shall be placed on the face of the final plat, short plat, large lot, or binding site plan documents when said subdivision contains any eCritical aAreas or critical-area-bufferBuffers:

Notice: This site lies within a [insert type of Critical Area] (e.g., landslide hazard area) as defined in EMC Title 14. Restrictions on use or alteration of the site may exist due to natural conditions of the site and resulting regulation.

2. Native Vegetation Preservation Areas. The following notice shall be placed on the face of the final plat, short plat, large lot, or binding site plan documents when said subdivision contains any eCritical aAreas or critical-area-bufferBuffers and when said eCritical aAreas or critical-area-bufferBuffers have been identified as native or natural vegetation preservation areas.

Notice: The Critical Areas appearing on this (final site plan/preliminary plat/final plat/short plat/large lot/engineering drawing) contain areas of nNative vVegetation intended to bufferBuffer the Critical Area from the adverse effects of development. These Critical Areas shall remain and be maintained in a natural, undeveloped, open space state. There shall be no eClearing and, gGrading, filling, or construction within the Critical Areas, except as shown on plans or documents approved by the City of Edgewood and contained in the official files for this development. Each Critical Area shall remain undisturbed except for periodic watering and hand weeding of plants designated as noxious by the State of Washington.

3. Plat Notes for Flood Hazard Areas. The following notes shall be placed on the face of any of final plat, short plat, large lot, or binding site plan documents which lie within a flood hHazard aArea.

- a. ~~Clearing and~~ Grading, ~~clearing, and/or filling~~ within the limits of the 100-year ~~floodplain~~Floodplain is prohibited, except for watercourse related construction, repair, ~~and/or~~ maintenance work that is done by the eCity for management operations.
- b. If a higher frequency event occurs or if existing conditions upon which the ~~flood h~~Hazard ~~a~~Area boundaries were based were to change or occur differently than depicted, then the level of protection afforded by the existing levee, if applicable, and ~~flood h~~Hazard ~~a~~Area standards may not be adequate to prevent the subject site from flooding.
- c. All purchasers, ~~and~~ developers, (~~and/or~~ their agents) of property within the subject development area ~~and/or~~ parcel shall take notice of the above conditions and hereby agree to defend, indemnify, and hold harmless ~~the City -Edgewood~~ from any and all claims, losses, costs, liabilities, or damages of any nature imposed upon or asserted against Edgewood arising out of or caused by the eCity's issuance of approval or by issuance of any other permits arising out of this approval.
- d. All occupants ~~and/or~~ owners of property in the subject area assume the risk of flooding which may occur and waive any claims against ~~the City Edgewood~~ arising out of damage or injury to person or property resulting therefrom. (Ord. 17-492 § 2 (Exh. A); Ord. 16-461 § 3; Ord. 02-200 § 2).

Chapter 14.1520

DEFINITIONS

A. This title ~~shall rely~~ on the definitions contained in EMC Chapter 18.20 - ~~Definitions-EMC, Definitions~~. Any word or phrase not contained herein shall be first referenced to EMC Chapter 18.20 for meaning. The eCity also adopts by reference the definitions stated in WAC 197-11-700 through 197-11-799 as now or hereafter amended.

1. For any word or term not defined herein, the latest edition of Webster's Dictionary shall be used.

~~1-2.~~ The Director, or their designee, has the final authority to determine the interpretation or usage of terms used in this Chapter.

B. Additional definitions not contained in EMC Chapter 18.20 that apply to this title are:

~~1. Abutting—bordering upon, to touch upon, in physical contact with. Sites are considered abutting even though the area of contact may be only a point.~~

~~2. Activity—any use conducted on a site.~~

~~3-1.~~ Addition – an alteration to an existing structure that increases the floor area, either. ~~There are two types of additions: additions affixed to the structure's side of an existing structure and or an upper story addition.~~

~~4-2.~~ Agricultural Activities – the production of crops and/or raising or keeping livestock, including operation and maintenance of farm and stock ponds, drainage ditches, irrigation systems, and normal operation, maintenance, and repair of existing serviceable agricultural structures, facilities, or improved areas, and the practice of aquaculture. – Activities which bring an area into agricultural use are not part of an ongoing activity. – An operation ceases to be ongoing when the area in which it was conducted is proposed for conversion to a non-agricultural use or has lain idle for a period of longer than five (5) years, unless the iedle land is registered in a federal or state soils conversation program. Forest practices regulated under RCW Chapter 76.09 RCW and or WAC Title 222 are not included in this definition.

~~5-3.~~ Agricultural Land(s) – land primarily devoted to the commercial production of horticultural, viticultural, floricultural, dairy, apiary, vegetable, or animal products or of berries, grain, hay, straw, turf, seed, Christmas trees not subject to the excise tax imposed by RCW Sections 84.33.100 through 84.33.140, finfish in upland hatcheries, or livestock, and that has tlong-tl term eC Commercial sSignificance for agricultural production.

~~4.~~ Animal Containment Area – a site keeping where at least 2,000 pounds two or more animal units of large animals per acre or 0.75-750 pounds of an animal unit of small animals per acre are kept, and or where a high volume of waste material is deposited in quantities capable of impacting groundwater resources.

~~5.~~ Animal, Large – an animal weighing 100 pounds or more.

~~6.~~ Animal, Small – an animal with an average weight of less than 100 pounds.

~~7-6.~~ Animal Unit – the equivalent of 1,000 pounds of animal.

~~8.~~ Appeal – a request for a review of the interpretation of any provision of this chapter, per EMC 14.10.090.

~~9.~~ Applicant – any person or entity, including an agency, applying for a license from an agency.

~~10.~~ Application – a request for a license.

~~11.~~ Aquifer – a saturated geologic formation, which will yield a sufficient quantity of water to serve as a private or public water supply.

Commented [JM3]: NEED TO UPDATE 15.05.060 O, Table R301.2.(1) reference to 14.80 and remove 15.10 reference, update 16.01.065 B reference from 15.10 to 14.80, and repeal EMC 15.10 in its entirety

12. ~~Area of Shallow Flooding~~—areas designated as AO or AH zones on the FIRM(s). AO zones are characterized as sheet flows, having base flood depths that range from one to three feet above the natural ground, where a clearly defined channel does not exist, the path of flooding is unpredictable and indeterminate, and velocity flow may be evident. AH zones indicate similar depth ponding, shown with standard base flood elevations on the FIRM(s).
13. ~~Area of Special Flood Hazard~~—land in the floodplain within a community subject to a one percent or greater chance of flooding in any given year. Designation on FIRM(s) always includes the letter A or V.
14. ~~Base Flood~~—the flood having a one percent chance of being equaled or exceeded in any given year, also referred to as the “100-year flood,” and is designated on FIRM(s) by the letter A or V.
- 15.7. ~~Basement~~—any area of the building having its floor sub-grade (below ground level) on all sides, for the purposes of this title.
- 16.8. ~~Best Available Science~~—scientific information applicable to the eCritical aAreas prepared by local, state, or federal natural resource agencies, a qualified scientific professional, or team of qualified scientific professionals that is consistent with criteria established in WAC Sections 365-195-900 through WAC 365-195-925.
- 17.9. ~~Best Management Practices (BMP)~~—conservation practices or systems of practices and management measures that:
- Control soil loss and reduce water quality degradation caused by high concentrations of nutrients, animal waste, toxics and sediment;
 - Minimize adverse impacts to surface water and ground water flow and circulation patterns and to the chemical, physical, and biological characteristics of wetlandWetlands;
 - Protect trees and vegetation designated to be retained during and following site construction and use nNative pPlant species appropriate to the site for re-vegetation of disturbed areas; and
 - Provide standards for proper use of chemical herbicides within eCritical aAreas.
18. ~~Breakaway Wall~~—a wall that is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces, without causing damage to the elevated portion of the building or supporting foundation system.
- 19.10. ~~BufferBuffer~~—an area contiguous with a eCritical aAreas that is are required for the integrity, maintenance, function, and structural stability of the said eCritical aAreas.
- 20.11. ~~Building Footprint~~—the horizontal area measured within the outside of the exterior walls of the ground floor of all principal and accessory buildings on a lot.
22. ~~City~~—the eCity of Edgewood municipal corporation.
- 24.13. ~~City Council~~—the Edgewood City Council.
- 22.14. ~~Classification~~—defining value and hazard categories to which eCritical aAreas and land resource lands will be assigned.
23. ~~Clearing~~—the removal of timber, brush, grass, ground cover, or other vegetative matter from a site, which exposes the earth's surface on the site.
24. ~~Colluvium~~—loose materials deposited by gravity on the face or at the foot of a slope, e.g., talus or soil creep.

Commented [JM4]: These definitions were added with the FEMA Flood Code Update, need to retain – moving to 14.80

Commented [JM5]: This definition was added with the FEMA Flood Code Update, need to retain – moving to 14.80

Commented [JM6]: This definition was added with the FEMA Flood Code Update, need to retain – moving to 14.80

~~25.15.~~ Compensatory Mitigation – replacing project-induced losses or impacts to a ~~e~~Critical ~~a~~Area.

~~26.16.~~ Conservation Easement – a recorded deed restriction or covenant that runs in perpetuity on a parcel of land restricting the use of the property by preventing future real estate development such as residential, industrial, or commercial use ~~that. Conservation easements~~ may allow for continued current uses, (e.g., residential, recreational, agriculture, forestry, or ranching); ~~however, conservation easements most often restrict both the current use as well as future uses of the land to some important conservation quality such as habitat preservation, open space, or scenic views. A land trust or governmental entity that manages properties for long-term goals typically holds conservation easements.~~

~~27.17.~~ Contaminant – any chemical, physical, biological, or radiological substance that does not occur naturally or occurs at concentrations and durations as to be injurious to human health or welfare or shown to be ecologically damaging.

~~28. Council~~—the Edgewood City Council.

~~29. County~~—means Pierce County.

~~30.18.~~ Crawl Space – the shallow space beneath the bottom floor of a house with no basement; used for access and inspection of framing, electrical, plumbing, insulation, vapor barriers, or duct work. For purposes of the National Flood Insurance Program Elevation Certificate, ~~this definition does not include spaces a crawl space that have~~s subgrade around all sides, ~~which~~ shall be considered a basement.

~~31.19.~~ Critical ~~a~~Aquifer ~~r~~Recharge ~~a~~Areas – areas with a critical recharging effect on aquifers used for potable water, including areas where an aquifer that is a source of drinking water is vulnerable to contamination that would affect the potability of the water, or is susceptible to reduced recharge.

~~32.20.~~ Critical ~~a~~Areas — ~~land that contains any of the following area, areas, and/or ecosystems: Aquifer Recharge Areas, Fish and Wildlife Habitat Conservation Areas, Frequently Flooded Areas, Geologically Hazardous Areas, or Wetlands; as defined in RCW 36.70A, as it now exists or may be hereinafter amended, and this Chapter(a) Wetlands; (b) areas with a critical recharging effect on aquifers used for potable water; (c) fish and wildlife habitat conservation areas; (d) frequently flooded areas; and (e) geologically hazardous areas.~~

~~33.21.~~ Critical ~~f~~Facilities – those facilities occupied by populations or which handle dangerous substances including but not limited to hospitals, medical facilities, nursing homes; structures housing, supporting, or containing toxic or explosive substances; covered public assembly structures; school buildings through secondary, including daycare centers; buildings for colleges or adult education; police, fire, and emergency response installations; jails and detention facilities; and all structures with occupancy of greater than 5,000 people. These facilities are such that even a slight chance of flooding might be too great. ~~Essential public facilities (as defined under EMC 18.20.080 and 18.100.050) are considered critical facilities, for floodplain management purposes.~~

~~34.22.~~ Debris Flow – the rapid downslope movement of a viscous mass of water-saturated sediments.

~~35.23.~~ Degraded – to have suffered a decrease in naturally occurring functions ~~and/or values due to activities undertaken or managed by persons on or off a site.~~

~~36.24.~~ Delineation – a ~~wetland~~Wetland study conducted in accordance with the approved federal ~~wetland~~Wetland delineation manual and applicable regional supplements.

~~37. Department~~—the City of Edgewood Department of Community Development.

~~38.25.~~ Depressional Pothole – a relatively sunken or low-lying area of the earth's surface, especially one having no natural outlet for surface drainage.

~~39. Development~~—any human-induced change to improved or unimproved real property, including but not limited to: the construction of buildings or other structures, placement of a manufactured home/mobile-

~~home, mining, dredging, clearing, filling, grading, paving, excavation, drilling operations, storage of equipment or materials located within an area of special flood hazard, or activities otherwise governed by EMC Title 16, Subdivisions.~~

~~40. Development activity—any construction, development, earth movement, clearing, or other site disturbance of the land, except as listed under exemptions.~~

~~41.26. Director – the director-head of the city-City’s of Edgewood Department of Community Development Department or his/her their designee.~~

~~42.27. DRASTIC – an acronym for a computer model developed by the National Water Well Association and Environmental Protection Agency used to measure aquifer susceptibility.~~

~~43. Dwelling Unit—one or more rooms designed for or occupied by one family for living or sleeping purposes and containing kitchen facilities for use solely by one family.~~

~~44.28. Earth or Earth Material – naturally occurring rock, soil, stone, sediment, or combination thereof.~~

~~45.29. Earthflow – a slow downslope movement of viscous, saturated sediments.~~

~~46. Elevated Building—a non-basement building that has its lowest elevated floor raised above ground level by foundation walls, shear walls, posts, piers, pilings, or columns.~~

~~47.30. Elevation Certificate – the official form (FEMA Form 81-31) used to track development, provide elevation information necessary to ensure compliance with community floodplain management ordinances, and determine the proper insurance premium rate with Section B completed by community officials.~~

~~48.31. Encroachment –any development or regulated activity conducted inside the boundaries of any designated-critical aAreas and/or its associated-bufferBuffer.~~

~~49.32. Engineer – as defined by RCW Chapter 18.43.~~

~~50.33. Engineering Geologist – a geologist who, by reason of his or her knowledge of engineering geology, acquired by education and practical experience, is qualified to engage in the practice of engineering geology; has met the qualifications in engineering geology established under Chapter 18.220 RCW, and has been issued a license in engineering geology by the Washington State Geologist Licensing Board.~~

~~51. Engineering Geology – a specialty of geology affecting the planning, design, operation, and maintenance of engineering works and other human activities where geological factors and conditions impact the public welfare or the safeguarding of life, health, property, and the environment.~~

~~52.34. Enhancement – actions performed within an existing degraded-critical aAreas and/or bufferBuffers to intentionally increase or augment one or more ecological functions or values of the existing area. Enhancement actions include, but are not limited to, increasing plant diversity and cover; increasing wildlife habitat and structural complexity with (snags or; woody debris); installing environmentally compatible erosion controls; removing non-nNative pPlant or animal species; or removing human-made structures or fill that are degrading ecological functions or values.~~

~~53. Erosion – the wearing away of the earth’s surface as a result of the movement of wind, water, or ice.~~

~~54.35. Erosion Hazard Areas – those areas that because of natural characteristics, including vegetative cover, soil texture, slope, gradient, and rainfall patterns, or human-induced changes to such characteristics, are vulnerable to erosion.~~

~~55. Excavation – the mechanical removal of earth material.~~

Commented [JM7]: Required for FEMA – moving to 14.80

56. ~~Existing Manufactured Home Park or Subdivision~~ — a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed before the effective date of the adopted floodplain management regulations.

57. ~~Expansion to an Existing Manufactured Home Park or Subdivision~~ — the preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).

Commented [JM8]: Required for FEMA – moving to 14.80

58.36. Facility – all structures, contiguous land, appurtenances, and other improvements on the land used for recycling, reusing, reclaiming, transferring, storing, treating, disposing, or otherwise handling a hazardous substance. ~~Use of the~~ This term “facility” includes underground and aboveground tanks and operations, which handle, use, dispose of, or store hazardous substances.

59. ~~Fill or Fill Material~~ — a deposit of earth material placed by human or mechanical means.

60.37. Filling – the act of placing fill ~~or~~ fill material on any surface, including temporary stockpiling of fill material.

61. ~~Financial Guarantee~~ — a surety bond or other security, e.g., cash escrow, cash set aside, assignment of funds, or letter of credit, which the City may allow a developer to utilize in lieu of completing the construction of required improvements prior to the City's approval and acceptance of the improvements. The City establishes the amount and conditions which will ensure completion within a specific time period.

62.38. Finished Floor – the top of the next higher floor above the ~~l~~Lowest ~~f~~floor. For purposes of the National Flood Insurance Program Elevation Certificate, the finished floor referenced in this regulation shall equal the top of the next higher floor.

63. ~~Fish and Wildlife Habitat Conservation Areas~~ — areas necessary for maintaining species in suitable habitats within their natural geographic distribution so that isolated subpopulations are not created as designated by WAC 365-190-080(5). “Fish and wildlife habitat conservation areas” does not include such artificial features or constructs as irrigation delivery systems, irrigation infrastructure, irrigation canals, or drainage ditches that lie within the boundaries of and are maintained by a port district or an irrigation district or company.

64.39. Fisheries Biologist – a professional with a degree in fisheries or certification by the American Fisheries Society, or with five (5) years ~~of~~ professional experience as a fisheries biologist.

65. ~~Flood or Flooding~~ — a general and temporary condition of partial or complete inundation of normally dry land areas from:

- a. ~~The overflow of inland or tidal waters; or~~
- b. ~~The unusual and rapid accumulation of runoff of surface waters from any source.~~

66.40. Flood Hazard Areas – areas of flooding identified by verifiable flooded areas using:

- a. Aerial photographs of the city, especially those taken in wintertime 1996 and 1997;
- b. Relevant and verifiable information from the ~~city~~City's capacity analysis technical review Ad-hoc committee (CATRAC) draft report, 2000;
- c. Relevant and verifiable government and citizen photographs, notes, observations, etc. regarding historic ponding/flooding levels;

- d. Relevant and verifiable information available through Pierce County;
- e. Relevant and verifiable information available through the Federal Emergency Management Agency (FEMA); or
- f. Areas of land located in floodplains, which are subject to a one percent or greater chance of flooding in any given year, including, but not limited to, streams, rivers, lakes, ponds, ~~wetland~~Wetlands, or ~~d~~Depressional ~~p~~Potholes ~~and the like~~.

~~67.41.~~ Flood Insurance Rate Map (FIRM) – the official map on which the Federal Insurance Administration (FIA) has delineated both the areas of special flood hazard and the risk premium zones applicable to the community.

~~68.~~ Flood Insurance Study (FIS) – the official report provided by the Federal Insurance Administration (FIA) that includes flood profiles, FIRM(s), and the water surface elevation of the ~~b~~Base ~~f~~Flood.

Commented [JM9]: Moved to 14.80 since definition is not used anywhere else in Title 14

~~69.42.~~ Flood Fringe – the area subject to inundation by the ~~b~~Base ~~f~~Flood, but outside the limits of the ~~floodway~~Floodway, and which may provide needed temporary storage capacity for floodwaters.

~~70.43.~~ Floodplain – the total area subject to inundation by the ~~b~~Base ~~f~~Flood, including the flood fringe and the ~~floodway~~Floodway areas.

~~71.44.~~ Floodway – the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to convey and discharge the ~~b~~Base ~~f~~Flood without cumulatively increasing the water surface elevation by more than one foot, and those areas designated as deep and/or fast-flowing water.

~~72.45.~~ Fluvial Processes – the physical interaction of flowing water and the natural channels of rivers and streams.

~~73.~~ Foundation Footing Setback – a typical geotechnical recommendation intended to assure that a proposed structure is protected in the event of a slope failure or sloughage. A foundation footing setback is measured horizontally from the face of the foundation footing to the face of the slope. A foundation footing setback for this purpose should not be confused with a building or construction setback from a landslide hazard area buffer. A foundation footing setback is also not a buffer.

~~74.46.~~ Frequently Flooded Area – lands in the floodplain subject to at least a one percent or greater chance of flooding in any given year, or within areas subject to flooding due to high groundwater. These areas include, but are not limited to, streams, rivers, lakes, ~~wetland~~Wetlands, and areas where high groundwater forms ponds on the ground surface.

~~75.47.~~ Geologically Hazardous Areas – areas that because of their susceptibility to erosion, sliding, earthquake, or other geological events are not suited to the siting of commercial, residential, or industrial development consistent with public health or safety concerns.

~~76.48.~~ Geologist – an ~~e~~Engineering ~~g~~Geologist, or hydrogeologist, ~~that is~~ registered in the ~~s~~State of Washington.

~~77.49.~~ Geotechnical Professional – a person with experience and training in analyzing, evaluating, and mitigating landslide, erosion, ~~and~~ or seismic hazards. A geotechnical professional shall be licensed in the state of Washington as a ~~g~~Geologist or ~~p~~Professional ~~e~~Engineer, and must have five or more years' experience specializing in landslide, erosion, or seismic hazards, as applicable.

~~78.50.~~ Geotechnical Report – a report prepared by a ~~Geologist or Professional Engineer~~ professional ~~engineer~~ licensed by the state of Washington with expertise in geotechnical engineering, evaluating the site conditions and mitigating measures necessary to reduce the risks associated with development in ~~g~~Geologically ~~h~~Hazardous ~~a~~Areas.

- 79.51. Grading or Clearing and Grading – any excavating, filling, clearing, ~~or~~ creating of impervious surfaces, ~~or any combination thereof of these items.~~
80. ~~Groundwater~~—all water found beneath the ground surface, including slowly moving subsurface water present in aquifers and recharge areas.
- 81.52. Habitat Management Plan – a report prepared by a professional ~~w~~Wildlife ~~b~~Biologist or ~~f~~Fisheries ~~b~~Biologist, which discusses and evaluates the measures necessary to maintain fish and wildlife habitat conservation areas on a proposed development site.
- 82.53. Habitat of Local Importance – an area, range, or habitat within which a species has a primary association and which, if altered, may reduce the likelihood that the species will maintain and reproduce over the long term. Examples include areas of high relative density or species richness, breeding habitat, winter range, and movement corridors. These areas may also include habitats that are of limited availability or high vulnerability to alteration.
- 83.54. Hard Armoring – the use of large rock ~~and~~/or human-made materials to protect property from shoreline erosion. Such techniques include cement ~~or~~ concrete bulkheads, steel structures, rock wall revetments, and rock gabion structures. Hard ~~a~~Armoring typically does not utilize or integrate any of soft armoring or ~~s~~Soil ~~b~~Bioengineering ~~techniques~~Methods.
84. ~~Hazardous Substance~~—any liquid, solid, gas, or sludge, including any materials, substance, product, commodity, or waste, regardless of quantity, that exhibits any of the characteristics or criteria of hazardous waste; ~~and including waste oil and petroleum products.~~
85. ~~Hazardous Substance Processing or Handling~~—the use, storage, manufacture, or other land use activity involving hazardous substances, but does not include individually packaged household consumer products or quantities of hazardous substances of less than five gallons in volume per container. Hazardous substances shall not be disposed on site unless in compliance with Dangerous Waste Regulations, Chapter 173-303 WAC, and any pertinent local ordinances such as sewer discharge standards.
86. ~~Hazardous Waste~~—all dangerous waste and extremely hazardous waste as designated pursuant to RCW Chapter 70.105 and WAC Chapter 173-303.
1. “Dangerous waste” means any discarded, useless, unwanted, or abandoned substances including but not limited to certain pesticides or any residues or containers of such substances which are disposed of in such quantity or concentrations as to pose a substantial present or potential hazard to human health, wildlife, or the environment because such wastes or constituents or combinations of such wastes:
- a. Have short-lived, toxic properties that may cause death, injury, or illness, or have mutagenic, teratogenic, or carcinogenic properties; or
 - b. Are corrosive, explosive, flammable, or may generate pressure through decomposition or other means.
2. “Extremely hazardous waste” means any waste which:
- a. Will persist in a hazardous form for several years or more at a disposal site and which in its persistent form presents a significant environmental hazard and may be concentrated by living organisms through a food chain or may affect the genetic make-up of humans or wildlife; and
 - b. Is disposed of at a disposal site in such quantities as would present an extreme hazard to humans or the environment.
87. ~~Hazardous Waste Treatment and Storage Facility~~—a facility that treats and stores hazardous waste and is authorized pursuant to Chapter 70.105 RCW and Chapter 173-303 WAC. It includes all contiguous land and structures used for recycling, reusing, reclaiming, transferring, storing, treating, or disposing of hazardous waste. Treatment includes using physical, chemical, or biological processing of hazardous wastes to make such waste non-dangerous or less dangerous and safer for transport, amenable for energy or

~~material resource recovery. Storage includes the holding of waste for a temporary period, but not the accumulation of waste on the site of generation as long as the storage complies with applicable requirements of Chapter 173-303 WAC.~~

~~88.55.~~ Holocene Epoch – that part of the geologic record that post-dates the youngest deposits associated with the late Pleistocene Age Fraser Glaciation and is typically considered to be the past 10,000 years.

~~89.56.~~ Hydrogeologic Assessment – a report detailing the subsurface conditions, the design of a proposed land use action, and the facilities operation which indicates the susceptibility and potential for contamination of groundwater supplies.

~~90. Impervious Surface~~ – a hard surface, which prevents or retards the entry of water into the soil mantle as under natural conditions prior to development, and/or a hard surface area, which causes water to run off the surface in greater quantities or at an increased rate of flow than the flow present under natural conditions prior to development. Common impervious surfaces include, but are not limited to, roof tops, walkways, patios, driveways, parking lots or storage areas, concrete or asphalt paving, gravel roads, gravel parking lots, packed earthen materials, and oiled, macadam or other surfaces which similarly impede the natural infiltration of stormwater. Open, uncovered retention/detention facilities shall not be considered as impervious surfaces.

~~91. Increased Cost of Compliance (ICC)~~ – a flood insurance claim payment up to \$30,000 directly to a property owner for the cost to comply with floodplain management regulations after a direct physical loss caused by a flood. Eligibility for an ICC claim can be through a single instance of “substantial damage” or as a result of a “cumulative substantial damage.” (More information can be found in FEMA ICC Manual 301.)

Commented [JM10]: FEMA Definition – moving to 14.80

~~92. Lahar~~ – a mudflow or debris flow mobilized by water, which originates on the slopes of a volcano.

~~93.57.~~ Lake – any impoundments of open water 20 acres or larger.

~~94. Landfill~~ – a place to dispose of refuse and other waste material by burying it and covering it over with soil.

~~95. Landslide~~ – the abrupt downslope movement of soil, rocks, or other surface matter on a site. Landslides may include but are not limited to slumps, debris flows, mudflows, earthflows, rockfalls, and snow avalanches.

~~96.58.~~ Landslide Hazard Areas – any areas which are potentially subject to risk of mass movement due to a combination of geologic, topographic, and hydrologic factors.

~~97. Large Animal~~ – an animal with an average weight of 100 pounds or more.

~~98. License~~ – any form of written permission given to any person, organization, or agency to engage in any activity, as required by law or agency rule. A license includes all or part of a city permit, certificate, approval, registration, charter, or plat approvals or rezones to facilitate a particular proposal. The term does not include a license required solely for revenue purposes.

~~99.59.~~ LiDAR – an acronym that stands for Light Detection and Ranging imaging.

~~100. Liquefaction~~ – a process by which a water-saturated granular (sandy) soil layer loses strength because of ground shaking caused by an earthquake.

~~101.60.~~ Long-Term Commercial Significance – the growing capacity, productivity, and soil composition of land, which makes it suitable for long-term commercial production, in consideration with the land’s proximity to population areas, and the possibility of more intense uses of land.

~~102.61.~~ Lowest Floor – the lowest floor of the lowest enclosed area (including basement and crawl space). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access, or storage in an area other than a basement area, is not considered a building’s lowest floor; provided, that such

enclosure is not built so as to render the structure in ~~v~~Violation of the applicable non-elevation design requirements of this title.

~~103.~~ *Maintenance*—those usual acts to prevent a decline, lapse, or cessation from a lawfully established condition without any expansion of or significant change from that originally established condition. For the purposes of this document, activities within landscaped areas within areas subject to native vegetation retention requirements may be considered maintenance only if they maintain or enhance the canopy and understory cover.

~~104.~~ *Manufactured Home or Mobile Home*—a structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. For floodplain management purposes, the term “manufactured home/mobile home” also includes park trailers, travel trailers, and other similar recreational vehicles placed on a site for greater than 180 consecutive days. For insurance purposes, the term “manufactured home/mobile home” does not include park trailers, travel trailers, recreational vehicles, or other similar vehicles.

Commented [JM11]: FEMA Definition – moving to 14.80

~~105.~~ *Manufactured Home Park or Subdivision*—a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

Commented [JM12]: FEMA Definition – moving to 14.80

~~106.~~ *Mineral Resource Lands* – those lands primarily devoted to the extraction of minerals or which have known or potential long-term commercial significance for the extraction of minerals.

~~107.~~ *Minerals*—gravel, sand, valuable metallic substances, or other resources that are extracted from the ground.

~~108.~~ *Mitigation*—means:

- a. Avoiding the impact altogether by not taking a certain action or parts of an action;
- b. Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps to avoid or reduce impacts;
- c. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
- d. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action;
- e. Compensating for the impact by replacing, enhancing, or providing substitute resources or environments; and
- f. Monitoring the impact and taking appropriate corrective measures;

~~109.~~ *Mudflow* – a ~~d~~Debris ~~f~~low containing an abundance of fine particles.

~~110.~~ *Native Vegetation or Native Plants* – a mix of plant species comprising herbs, grasses, grass-like plants, shrubs and trees indigenous to the Puget Sound region that reasonably could be expected to naturally occur on the site.

~~111.~~ *Natural Resource Lands* – agricultural and mineral resource lands, which have long-term commercial significance.

~~112.~~ *New Construction* – structures for which the “~~s~~Start of ~~e~~Construction” commenced on or after the following:

~~113.~~ For the purposes of determining flood insurance rates, the effective date of an initial FIRM (i.e., August 19, 1987, or August 4, 1988, specifically for Panel 350 only), and includes any subsequent improvements to such structures.

~~114. For floodplain management purposes, the effective date of this floodplain management ordinance and includes any subsequent improvements to such structures.~~

Commented [JM13]: FEMA-specific definition – moved to 14.80

~~115.66. For all other cases, the effective date of this applicable eCritical aAreas ordinance.~~

~~116. New Manufactured Home Park or Subdivision – a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after the effective date of the adopted floodplain management regulations.~~

Commented [JM14]: FEMA Definition – moving to 14.80

~~117. Ordinance – the ordinance, resolution, or other procedure used by the city to adopt regulatory requirements.~~

~~118.67. Ordinary High Water Mark (OHWM) – the mark on all lakes, streams and tidal waters that will be found by examining the beds and banks and ascertaining where the presence and action of waters are so common and usual, and so long continued in all ordinary years, as to mark upon the soil a character distinct from that of the abutting upland and vegetation, as that condition exists on the effective date of the ordinance codified in this title, or as it may naturally change thereafter. In any area where the ordinary high water mark cannot be found, the ordinary high water mark shall be the line of mean higher high tide in areas adjoining saltwater, and the line of mean high water in areas adjoining freshwater.~~

“Plat” means:

~~1. “Short subdivision” or “short plat” means the division or redivision of land into six or fewer lots, tracts, parcels, sites, or divisions for the purpose of sale, lease, or transfer of ownership.~~

~~2. “Subdivision” or “formal subdivision” means the division or redivision of land into seven or more lots, tracts, parcels, sites, or division for the purpose of sale, lease, or transfer of ownership. For floodplain management regulation purposes, this includes land over five acres in area situated within a flood hazard area.~~

~~119.68. Pond – naturally occurring impoundments of open water less than 20 acres in size and larger than 2,500 square feet, which maintain standing water throughout the year. See also *Depressional Pothole*.~~

~~69. Priority Habitats and Species – habitats and species of local importance and concern in urban areas, as identified and mapped by the Washington Department of Fish and Wildlife priority habitat and species (PHS) program. Priority Species are wildlife species of concern due to their population status and their sensitivity to habitat alteration. Priority Habitats are areas with one or more of the following attributes: comparatively high wildlife density; high wildlife species richness; significant wildlife breeding habitat; significant wildlife seasonal ranges; significant movement corridors for wildlife; limited availability; or high vulnerability.~~

~~120.70. Professional Engineer – an engineer currently licensed and registered in the state of Washington.~~

~~121. Reconstruction – the rebuilding of an existing structure which has been partially or completely destroyed by any cause, such as but not limited to fire, wind, landslides, and water, without increasing the original floor area or square footage area.~~

~~122. Recreational Vehicle (RV) – a vehicle built on a single chassis, 400 square feet or less when measured at the largest horizontal projection, designed to be self-propelled or permanently towable by a light duty truck, and designed primarily not for use as a permanent dwelling but as a temporary living quarters for recreational, camping, travel, or seasonal use.~~

Commented [JM15]: FEMA Definition – moving to 14.80

~~123.71. Regulated Activities – means, but is not limited to, any of the following activities which are directly undertaken or originate in a regulated eCritical aArea or its bufferBuffer: building permit, commercial or residential; binding site plan; franchise right-of-way construction permit; site development permit; right-of-way permit; shoreline permits; short subdivision; use permits; subdivision; utility permits; or any subsequently adopted permit or required approval not expressly exempted by this title.~~

~~124. Rehabilitation~~—any improvements and repairs which are made to the interior and exterior of an existing structure, but which do not result in any increase in the floor area of the structure. This is also commonly referred to as a “remodel” of an existing structure.

~~125.72.~~ Restoration – an action which returns habitat to a state in which its stability and functions approach its unaltered state as closely as possible. This may be accomplished through measures including, but not limited to, re-vegetation, removal of intrusive stream bank structures, and removal or treatment of toxic materials. Restoration does not imply a requirement for returning the ~~eCritical a~~Area to aboriginal or pre-European settlement conditions.

~~126.73.~~ Revised Code of Washington (RCW) – an acronym that stands for Revised Code of Washington all laws of a general and permanent nature heretofore or hereafter enacted by the legislature, and assign permanent numbers as provided by law to all new titles, chapters, and sections thereof.

~~127.74.~~ Riparian – the area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. Riparian habitat begins at the ordinary high water mark and includes the entire extent of the floodplain and riparian areas of ~~wetland~~Wetlands that are directly connected to the stream course.

~~128.75.~~ Seismic Hazard Areas – areas subject to severe risk of damage as a result of earthquake-induced ground shaking, slope failure, settlement, or soil liquefaction.

~~129.76.~~ Sensitive Areas – agricultural lands and mineral resource lands and all associated ~~buffer~~BufferBuffers.

~~130.77.~~ Shoreline – the line where a body of water and the shore meet or the strip of land along the shoreline. There are no waters within the ~~City of Edgewood~~ meeting the criteria of shorelines of statewide significance as defined by RCW 90.58.030.

~~131. Single-Family Dwelling~~—a detached building designed exclusively for occupancy by one family and containing one dwelling unit.

~~132.78.~~ Site – a lot, parcel, tract, or combination of lots, parcels, or tracts on which a regulated activity is proposed.

~~133. Slope~~—an inclined earth surface, the inclination of which is expressed as the ratio of horizontal distance to vertical distance.

~~134.79.~~ Sludge – a semi-solid substance consisting of settled solids combined with varying amounts of water and dissolved materials generated from a wastewater treatment plant or system or other sources, including septage sludge, sewage sludge, and industrial sludge.

~~135.80.~~ Sludge Land Application Site – a site where stabilized sludge, septage, and other organic wastes are applied to the surface of the land in accordance with established agronomic rates for fertilization or soil conditioning.

~~136. Slump~~—the downward and outward movement of a mass of bedrock, colluvium, or other sediments along a distinct surface of failure.

~~137. Small Animal~~—an animal with an average weight of less than 100 pounds.

~~138.81.~~ Special Occupancy Structures – those structures that have the potential to provide capacity for large numbers of people or special groups of people or assemblies such as but not limited to schools, jails and detention facilities, and resident incapacitated patients.

~~139.82.~~ Species of Local Importance – species that are of local concern due to their population status or their sensitivity to habitat manipulation.

~~140.83. _____~~ *Soft Armoring Techniques or Soil Bioengineering Methods* – the use of woody plants and limited structural-mechanical systems that are integrated in a structurally and environmentally sound manner to repair and protect slopes and shorelines against shallow mass wasting and surface erosion. *Examples include, but are not limited to Measures such as* live stake, live fascine, brushlayer, live cribwall, vegetated geogrid, branchpacking, live slope grading, beach berms, or earthen berms *are examples of soft armoring techniques. Soft armoring techniques may also be referred to as soil bioengineering methods.*

~~141. _____~~ *Start of Construction* – includes ~~s~~Substantial ~~i~~Improvement, and means the date the building permit was issued, provided the actual ~~s~~Start of ~~e~~Construction, repair, reconstruction, placement or other improvement was within 180 days of the permit date. The “actual start” means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the “actual start of construction” means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

Commented [JM16]: FEMA Definition – not used elsewhere in Title 14, so I moved it to 14.80.

~~142.84. _____~~ *Stockpiling* – the placement of material with the intent to remove it later.

~~143. _____~~ *Stream* – a feature where surface waters produce a defined channel or bed. A defined channel or bed is an area that demonstrates clear evidence of the passage of water and includes, but is not limited to, bedrock channels, gravel beds, sand and silt beds, and defined-channel swales. The channel or bed need not contain water year-round. This definition is not intended to include artificially created irrigation ditches, canals, storm or surface water devices, or other entirely artificial watercourses, unless they are used by salmonids or created for the purposes of stream mitigation.

~~85. _____~~

~~144. _____~~ *Structure* – a walled and roofed building, including a gas or liquid storage tank that is principally above ground.

Commented [JM17]: FEMA Definition – moving to 14.80

Substantial Damage – damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed fifty (50) percent of the market value of the structure before the damage occurred.

~~145.86. _____~~ *Substantial Improvement* – any repair, reconstruction, addition, rehabilitation, or other improvement of a structure, whereby the cost for the work exceeds fifty (50) percent of the market value of the existing structure before the “~~s~~Start of ~~e~~Construction” of the improvement. ~~Except for floodplain management regulation,~~ ~~†~~The “cost” and “market value” may be determined using the current permit valuation. The ~~building official~~ Director shall determine the current permit valuation based on the cost per square foot values in effect at the time of permit application. Substantial improvement shall be accumulative from the effective date of the ordinance codified in this chapter. This term includes structures which have incurred “~~s~~Substantial ~~d~~Damage,” regardless of the actual repair work performed. The term does not, however, include either:

- a. Any project for improvement of a structure to correct existing ~~v~~Violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions; or
- b. Any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places; provided, that the alteration will not preclude the structure’s continued designation as a “historic structure.”

- ~~146. Talus~~ – a homogenous area of rock rubble ranging in average size 0.15 to 2.0 meters (0.5 to 6.5 feet), including riprap slides and mine tailings. Talus areas may be associated with cliffs.
- ~~147.87.~~ *Toe of Slope* – a distinct topographic break in slope at the lowermost limit of the landslide or erosion hazard area.
- ~~148.88.~~ *TPCHD* – an acronym that stands for the Tacoma-Pierce County Health Department.
- ~~149.89.~~ *Underground Storage Tank or UST* – one tank or a combination of multiple tanks, (including the underground pipes connected thereto,) which are used to contain or dispense an accumulation of hazardous substances or hazardous wastes, and the total volume of which (including the volume of underground pipes connected thereto) is 10 percent or more beneath the surface of the ground.
- ~~150. Urban Governmental Services~~ – those governmental services historically and typically delivered by cities, and includes storm and sanitary sewer systems, domestic water systems, street cleaning services, and other public utilities associated with urban areas and normally not associated with nonurban areas.
- ~~151.90.~~ *Urban Growth* – growth that makes intensive use of the land for the location of buildings, structures, and impermeable surfaces to such a degree as to be incompatible with the primary use of such land for the production of food, other agricultural products, or fiber, or the extraction of mineral resources. When allowed to spread over wide areas, uUrban gGrowth typically requires urban governmental services. “Characterized by urban growth” refers to land having urban growth located on it or to land located in relationship to an area with urban growth on it as to be appropriate for urban growth.
- ~~152. Utility Line~~ – pipe, conduit, cable, or other similar facility by which services are conveyed to the public or individual recipients. Such services shall include, but are not limited to, water supply, electric power, gas, communications, and sanitary sewers.
- ~~153. Variance~~ – a grant of relief from the requirements of this title r that permits construction in a manner that would otherwise be prohibited by this title, per EMC 14.10.085.
- ~~154.91.~~ *View Corridor* – an area, which affords views of lakes, mountains, or other scenic amenities normally enjoyed by residential property owners.
- ~~155.92.~~ *Violation* – the failure of a structure or other development activity to be fully compliant with the provisions of this title. With regard to the floodplain management regulations, projects without the elevation certificate, other certifications, or other evidence of compliance required in Chapter 14.70 EMC are presumed to be in violation until such time as that documentation is provided. See EMC Chapter 1.10 EMC for penalties.
- ~~156.93.~~ *Volcanic Hazard Areas* – those areas subject to pyroclastic flows, lava flows, and inundation by dDebris fFlows, mMudflows, or related flooding resulting from geologic or volcanic events on Mount Rainier.
- ~~157.94.~~ *Washington Administrative Code (WAC)* – an acronym that stands for the State of Washington Administrative Code.
- ~~158. Water Dependent~~ – a structure for commerce or industry that cannot exist in any other location and is dependent on the water by reason of the intrinsic nature of its operations.
- ~~159.95.~~ *Wellhead Protection Area* – the area within the 10-year time-of-travel zone boundary of a Group A public water system well, as delineated by the water system purveyor or its designee, pursuant to WAC 246-290-135.
- ~~160.96.~~ *Wetland* – areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlandWetlands intentionally created from non-

Commented [JM18]: FEMA Definition – moving to 14.80

Commented [JM19]: This was added in January 2017 after FEMA peer review. Moving flood code specifics to 14.80.

Commented [JM20]: FEMA Definition – moving to 14.80

~~wetland~~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 ~~wetland~~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 ~~wetland~~Wetlands intentionally created from non-~~wetland~~Wetland areas created to mitigate conversion of ~~wetland~~Wetlands.

~~161-97.~~ Wetland Category – the numeric designation (I through IV) assigned to a ~~wetland~~Wetland to indicate the ~~wetland~~Wetland's overall function and value. Wetland categories rank the ~~city~~City's ~~wetland~~Wetlands from highest (Category I) to lowest (Category IV) using the current version of the Washington State Wetland Rating System for Western Washington (Hruby, 2014)

~~162-98.~~ Wetland Class – the U.S. Fish and Wildlife Service wetland classification scheme that uses a hierarchy of systems, subsystems, classes, and subclasses to describe wetland habitat types (refer to USFWS, December 1979, Classification of Wetlands and Deepwater Habitats of the United States for a complete explanation of the wetland classification scheme). These include, for example: forested, scrub-shrub, emergent, and aquatic bed.

~~163-99.~~ Wetland Mosaic – a patchwork of ~~wetland~~Wetlands that is considered one unit where each patch of ~~wetland~~Wetland is less than one acre and the areas delineated as vegetated ~~wetland~~Wetland are more than fifty percent of the total area of the ~~wetland~~Wetlands and uplands together.

100. Wetland Specialist – a person that obtained Professional Wetland Scientist (PWS) or Wetland Professional In-Training (WPIT) certification from the Society of Wetland Scientists or a qualified Wetland professional with experience and training in Wetlands issues and with experience in performing a Delineation, analyzing Wetland functions and values, analyzing Wetland impacts, and recommending Wetland mitigation and Restoration. A Qualified Wetland Professional is a person with experience and training that includes, at a minimum:

- a. A B.S., B.A., or equivalent degree in biology, botany, environmental studies, fisheries, soil science, wildlife, agriculture, or related field; and
- b. Two years of related work experience; and
- c. One-year experience delineating Wetlands using the Unified Federal Manual and preparing Wetland reports and mitigation plans; OR
- d. Four years of related work experience and training; and
- e. Two years of experience delineating Wetlands using the Federal Manual and preparing Wetland reports, and mitigation plans.

~~wetland-scientist with at least two years of full-time work experience as a wetlands professional, including delineating wetlands using the federal manual and supplements, preparing wetland reports, conducting function assessment, and development and implementing mitigation plans.~~

~~164-101.~~ Wildlife Biologist – a professional with a degree in wildlife, or certification by the Wildlife Society, or with five (5) years of professional experience as a ~~w~~Wildlife ~~b~~Biologist. (Ord. 17-492 § 2 (Exh. A); Ord. 16-461 § 2; Ord. 15-447 § 1 (Exh. A); Ord. 02-200 § 2).

Chapter 14.30

USE AND ACTIVITY REGULATIONS

Sections:

- 14.30.010 Permitted uses.
- 14.30.020 Regulated uses and activities.
- 14.30.030 Exemptions.
- 14.30.040 Nonconforming uses and structures.
- 14.30.050 Reasonable use exceptions.
- 14.30.060 Current use assessment program.

14.30.010 Permitted uses.

Uses permitted on properties designated as eCritical aAreas shall be the same as those permitted in the zone eClassification shown in the City's Official Zoning Map unless specifically prohibited by this title. (Ord. 02-200 § 2).

14.30.020 Regulated uses and activities.

A. Unless the requirements of this title are met, the departmentDepartment shall not grant any approval or permission to alter the condition of any land, water, or vegetation, or to construct or alter any structure or improvement regulated through the following: building permit, commercial or residential; binding site plan; franchise right-of-way construction permit; site development permit; right-of-way permit; short subdivision; large lots; use permits; subdivision; utility permits; or any subsequently adopted permit or required approval not expressly exempted by this chapter.

B. The following activities are regulated within any eCritical aAreas and its and/or their bufferBuffers, unless exempted by EMC 14.30.030:

1. Removing, excavating, disturbing, or dredging soil, sand, gravel, minerals, organic matter, or materials of any kind;
2. Dumping, discharging, or filling Grading;
3. Draining, flooding, or disturbing the water level or water table. In addition, an activity which involves intentional draining, flooding, or disturbing the water level or water table in a wetlandWetland or stream in which the activity itself occurs outside the regulated area shall be considered a regulated activity;
4. Driving, piling, or placing obstructions, including placement of utilities;
5. Constructing, reconstructing, installing, demolishing, or altering the size of any structure or infrastructure, including manufactured and/or mobile homes;
6. Altering the character of a regulated area by destroying or altering vegetation through clearing, harvesting, cutting, intentional burning, shading, or planting;
7. The division of land;
8. The creation of hard surfaces; and;
9. Any additional activities regulated in EMC Chapter 14-80 – Flood Hazard Areas.

14.30.030 Exemptions.

A. Individuals, organizations, or associated party-parties shall avoid potential impacts to eCritical aAreas and their bufferBuffers to the greatest degree feasible. To be exempt from this title does not give permission to degrade a eCritical aArea or its bufferBuffer or ignore risk from natural hazards. Any incidental damage to, or alteration of, a

~~eCritical aArea~~ or its ~~bufferBuffer~~ that is not a necessary outcome of the exempted activity shall be restored, rehabilitated, or replaced at the responsible party's expense.

B. The following activities are exempt from the provisions of this title:

1. Operation, maintenance, or repair of existing structures, infrastructure improvements, utilities, public or private roads, dikes, levees, or drainage systems, that do not require construction permits, if the activity does not further alter or increase the impact to, or encroach further within, the ~~eCritical aArea~~ or ~~bufferBuffer~~ and there is no increased risk to life or property as a result of the proposed operation, maintenance, or repair. Operation and maintenance includes vegetation management performed in accordance with ~~best-management-practices-BMPs~~ that ~~is are~~ a part of ongoing maintenance of structures, infrastructure, or utilities, provided that such management actions are part of ongoing maintenance, do not expand further into the ~~eCritical aArea~~ or ~~bufferBuffer~~, are not the result of an expansion of the structure or utility, and do not directly impact an endangered or threatened species.

2. Normal maintenance or repair of existing structures or developments, including damage by accident, fire, or elements. "Normal maintenance" includes those usual acts to prevent a decline, lapse, or cessation from a lawfully established condition. "Normal repair" means to restore a development to a state comparable to its original condition including, but not limited to, its size, shape, configuration, location, and external appearance, within a reasonable period after decay or partial destruction, except where repair causes substantial adverse effects to ~~eCritical aAreas~~ or their ~~bufferBuffers~~. Replacement of a structure or development may be authorized as repair where such replacement is the common method of repair for the type of structure or development and the replacement structure or development is comparable to the original structure or development including, but not limited to, its size, shape, configuration, location, and external appearance and the replacement does not expand further into the ~~eCritical aArea~~ or ~~bufferBuffer~~. Refer to EMC ~~Section 14.230.040.D (D)~~ for requirements associated with repair of ~~sSubstantial dDamage~~ of non-conforming structures.

3. Reconstruction, remodeling, or maintenance of existing single-family residential structures and accessory structures that are located outside a ~~fFlood hHazard aArea~~ and active ~~lLandslide hHazard aArea~~; provided, that a one-time only expansion of the ~~bBuilding fFootprint~~ does not increase by more than 25 percent and that the ~~aNew eConstruction~~ or related activity does not further intrude into the ~~eCritical aArea~~ or related ~~bufferBuffer~~. The exemption shall not apply to reconstruction which is proposed as a result of structural damage associated with a ~~eCritical aArea, such as slope failure in a landslide hazard area or flooding in a flood hazard area.~~

4. Reconstruction, remodeling, or maintenance of structures, other than single-family structures and accessory structures that are located outside a ~~fFlood hHazard aArea~~ or active ~~lLandslide hHazard aArea~~; provided, that such reconstruction, remodeling, or maintenance does not increase the floor area nor extend beyond the existing ground coverage. The exemption shall not apply to reconstruction which is proposed as a result of site or structural damage associated with a ~~eCritical aArea, such as slope failure in a lLandslide hHazard aArea~~ or flooding in a ~~fFlood hHazard aArea~~.

5. Site investigative work necessary for land use ~~aApplication~~ submittals such as surveys, soil logs, percolation tests, and other related activities. Critical ~~aArea~~ impacts shall be minimized and disturbed areas shall be immediately restored.

6. Emergency actions necessary to prevent imminent threat or danger to public health or safety, or to public or private property, or serious environmental degradation.

a. The ~~departmentDepartment~~ shall review all proposed emergency actions to determine the existence of the emergency and reasonableness of the proposed actions taken; however, post-emergency actions, such as submittal of permits, completion of ~~cityCity~~ review, modification or removal of the emergency repair work, or mitigation shall be required by the ~~departmentDepartment~~.

b. Erosion protection measures shall only be allowed as an emergency action when the owner can demonstrate that there is an imminent threat to an existing residential, commercial, industrial, or agricultural structure. The owner shall retain either ~~cityCity~~ staff or an ~~eEngineering gGeologist~~ to conduct

a site investigation and provide adequate documentation that the situation is actually an emergency. An emergency action is not warranted when the structure is located outside the active landslide area.

c. After the emergency, the person or agency undertaking the action shall fully fund and conduct necessary ~~r~~Restoration ~~and/or m~~Mitigation for any impacts to the ~~e~~Critical ~~a~~Area and ~~buffer~~Buffers resulting from the emergency action in accordance with an approved ~~e~~Critical ~~a~~Area report and mitigation plan. The person or agency undertaking the action shall apply for review, and the alteration, ~~e~~Critical ~~a~~Area report, and mitigation shall be reviewed by the ~~department~~Department in accordance with the review procedures contained herein. Restoration ~~and/or~~ mitigation activities must be initiated within 90 days of the date of the emergency activity, ~~and both must be fully~~ completed within one (1) year.

7. Installation, construction, replacement, repair, operation or alteration of natural gas, cable and telecommunication facilities, electric facilities and lines, water, sewer or storm lines, pipes, mains, equipment, or appurtenances in publicly owned right-of-way, (which may be within or adjacent to ~~any e~~Critical ~~a~~Areas or ~~its buffer~~Buffers), subject to full review and approval of the ~~d~~Department, including any ~~m~~Mitigation ~~and/or~~ ~~r~~Restoration requirements established by the ~~d~~Department.

8. Removal by hand of manmade litter and control of noxious weeds that are included on the state noxious weed list (Chapter 16-750 WAC) or invasive plant species as identified by the ~~city~~City. Control may be conducted by clipping, pulling, or digging, or by an alternative non-mechanical method upon approval of a plan by the ~~department~~Department.

9. Activities undertaken to comply with a United States Environmental Protection Agency superfund order, or a Washington Department of Ecology order, pursuant to the Model Toxics Control Act, including the following activities:

- a. Remediation or removal of hazardous or toxic substances;
- b. Source control; and
- c. Natural resource damage ~~r~~Restoration.

10. Activities within a portion of a ~~wetland~~Wetland ~~buffer~~Buffer or fish and wildlife habitat conservation area ~~buffer~~Buffer located landward of an existing, substantially developed area, such as a paved area, dike, levee, or permanent structure which eliminates or greatly reduces the impact of the proposed activities on the ~~wetland~~Wetland or fish and wildlife habitat conservation area. The ~~department~~Department shall review the proposal to determine the likelihood of associated impacts.

11. Passive recreation such as hunting, hiking, fishing, and wildlife viewing that does not involve the construction of trails.

12. Enhancement actions that do not involve clearing, ~~Grading~~, or construction activities, (e.g., revegetation with ~~n~~Native ~~p~~Plants and installation of nest boxes). Enhancement activity proposals shall be reviewed by the ~~d~~Department.

13. Forest practices conducted in accordance with the requirements of the Forest Practice Act (Chapter 76.09 RCW) and its rules, with the exception of the conversion of forest land to a use other than commercial forestry (Class IV conversions).

14. Existing and ongoing ~~a~~Agricultural ~~a~~Activities, provided that they comply with the provisions of Chapter 14.80 EMC, Flood Hazard Areas, and implement applicable Best Management Practices (BMPs) contained in the latest editions of the USDA Natural Resources Conservation Service Field Official Technical Guide; or develop a farm conservation plan in coordinate with the local conservation district. ~~The~~ BPMs and/or farm plans should address potential impacts to eCritical aAreas from livestock, nutrient and farm chemicals, soil erosion and sediment control, and agricultural drainage infrastructure. The BMPs and/or farm plans should ensure that ongoing aAgricultural aActivities minimize their effects on water quality, rRiparian ecology, salmonid populations, and wildlife habitat.

~~-(Ord. 02-200 § 2).~~

14.230.040 Nonconforming uses and structures.

~~A.~~ An established use or existing structure located in a ~~wetland~~Wetland, fish and wildlife habitat conservation area, landslide or ~~e~~Erosion ~~h~~Hazard ~~a~~Area, ~~f~~Flood ~~h~~Hazard ~~a~~Area, and their associated ~~buffer~~Buffers that was lawfully permitted prior to the effective date of this title, but which is not currently in compliance with this title, may continue subject to the following:

~~A.1.~~ Nonconforming Use Expansion. Nonconforming uses shall not be expanded or changed in any way that increases the nonconformity without a permit issued pursuant to the provisions of this title.

~~B.2.~~ Nonconforming Structure Expansion. Existing structures shall not be expanded or altered in any manner that will increase the nonconformity without a permit issued pursuant to the provisions of this title, except as provided in EMC 14.230.030(B).

~~C.3.~~ Discontinued Uses. Activities or uses which are discontinued for ~~twelve~~ (12) consecutive months shall be allowed to resume only if they are in compliance with this title.

~~D.4.~~ Substantial Damage. Nonconforming structures, except for structures located in a ~~f~~Flood ~~h~~Hazard ~~a~~Area or active ~~l~~Landslide ~~h~~Hazard ~~a~~Area which are damaged or destroyed by fire, explosion, flood, or other casualty, may be restored or replaced if reconstruction is commenced within one year of such damage and is substantially completed within 18 months of the date such damage occurred. The reconstruction or ~~r~~Restoration shall not serve to expand, enlarge, or increase the nonconformity except as allowed through the provisions in EMC 14.230.030(B). Structures in a ~~h~~oodwayFloodway or active ~~l~~Landslide ~~h~~Hazard ~~a~~Area may be allowed to be restored only up to the limits of ~~s~~Substantial ~~i~~mprovement, as set forth in each chapter. (Ord. 02-200 § 2).

~~B. The provisions of EMC Section 18.90.110 may also apply to nonconformities not expressly described in this chapter.~~

14.230.050 Reasonable ~~u~~se ~~e~~xceptions.

~~A. General Requirements:~~

~~A. If the application of this chapter would deny all reasonable use of the property, the applicant may apply for a Reasonable Use Exception pursuant to this subsection. The Hearing Examiner may approve alterations to a Critical Area or its Buffers to allow a reasonable use not otherwise allowed by this chapter when the following criteria are met:~~

- ~~1. The application of this chapter would deny all reasonable use of the property;~~
- ~~2. There is no other reasonable use with less impact on the Critical Area;~~
- ~~3. The proposed development does not pose an unreasonable threat to the public health, safety, or welfare on or off the development proposal site and is consistent with the general purposes of this title and the public interest; and~~
- ~~4. Any alterations permitted to the Critical Area or its Buffer shall be the minimum necessary to allow for reasonable use of the property; and any authorized alteration of a Critical Area under this subsection shall be subject to conditions established by the Department including, but not limited to, mitigation under an approved mitigation plan.~~

~~If, after a property owner makes application for a variance, and the variance is denied, the property owner may apply for a reasonable use exception. A reasonable use exception may be requested when it is alleged that the application of this title would deny all reasonable use of a site. Approval of a reasonable use exception allows development which is consistent with the general purposes of this title and the public interest. Nothing in this title is intended to preclude all reasonable use of property.~~

~~2. The provisions outlined in this section shall only be used when application of this title would deny all reasonable use of a site.~~

~~3. Applications for a reasonable use shall automatically constitute an application for a variance to reduce front, side, or rear yard setback requirements. The decision maker shall examine the feasibility of reducing setbacks as a method of locating a structure outside a critical area or its associated buffer prior to granting a reasonable use exception for allowing construction to occur within a critical area or its associated buffer. Reductions in setback requirements shall be given preference over granting of a reasonable use exception.~~

~~5. The proposed impact to the critical area shall be the minimum necessary to allow for reasonable use of the property.~~

~~6. Mitigation may be required to assure that the proposal will result in no net loss of critical area functions and values, consistent with the best available science.~~

~~7. The creation of new lots within critical areas and their associated buffers is prohibited.~~

~~8. The proposal must comply with all provisions in Chapter 14.70 EMC, Flood Hazard Areas, and Chapter 14.80 EMC, Landslide Hazard Areas.~~

B. Application Requirements. A complete ~~a~~Application for a ~~r~~Reasonable ~~u~~Use ~~e~~Exception shall include the following ~~information~~nine (9) items:

1. A description of the areas of the site that contains a ~~e~~Critical ~~a~~Area, ~~buffer~~Buffer(s), or within setbacks required under this title;
2. A description of the amount of the site that is within setbacks required by other standards of the zoning code;
3. A description of the proposed development, including a site plan;
4. An analysis of the impact that the amount of development described in subsection (B)(3) of this section would have on the ~~e~~Critical ~~a~~Area(s);
5. An analysis of whether any other reasonable use with less impact on the ~~e~~Critical ~~a~~Area(s) and associated ~~buffer~~Buffer(s) is possible;
6. A design of the proposal so that the amount of development proposed as reasonable use will have the least impact practicable on the ~~e~~Critical ~~a~~Area(s);
7. An analysis of the modifications needed to the standards of this title to accommodate the proposed development;
8. A description of any modifications needed to the required front, side, and rear setbacks; building height; and ~~buffer~~Buffer widths to provide for a reasonable use while providing greater protection to the ~~e~~Critical ~~a~~Area(s);
9. Such other information ~~as the d~~Department determines is reasonably necessary to evaluate the issue of reasonable use as it relates to the proposed development, such as but not limited to a ~~w~~Wetland ~~a~~Analysis ~~r~~Report, mitigation plan, habitat evaluation study, ~~and/or a~~ ~~buffer~~Buffer ~~e~~Enhancement ~~p~~Plan.

C. Review. ~~A rReasonable uUse eException is a Type III permit and shall be processed according to the procedures in EMC chapter Section 18.40.080-100 EMC.~~

~~1. Public Hearing Required. The department shall set a date for a public hearing after all requests for additional information or plan correction, as set forth in EMC 18.40.150, have been satisfied. The public hearing shall follow the procedures set forth in EMC 18.40.190, Notice of public hearing.~~

~~2. Decision Criteria. The decisionmakerThe decisionmaker may approve a reasonable use exception if the decisionmakerthe decisionmaker determines that the applicant has demonsrateddemonstrated that all of the following criteria are met:~~

a. The proposed development is located on an existing lot of record that was created prior to the effective date of the ordinance codified in this title and there is no other reasonable use or feasible alternative to the proposed development with less impact on the critical area(s) and/or associated buffers including phasing or project implementation, change in timing of activities, buffer averaging or reduction, setback variance, relocation of driveway, or placement of structure; and

b. The development cannot be located outside the critical area and/or its associated buffer due to topographic constraints of the parcel or size and/or location of the parcel in relation to the limits of the critical area and/or its associated buffer and a building setback variance or road variance has been reviewed, analyzed, and rejected as a feasible alternative; and

c. The proposed development does not pose a threat to the public health, safety, or welfare on or off the site, nor shall it damage nearby public or private property; and

d. Any alteration of the critical area(s) shall be the minimum necessary to allow for reasonable use of the property; and

e. The inability of the applicant to derive reasonable use of the property is not the result of actions by the applicant in subdividing the property or adjusting a boundary line thereby creating the undevelopable condition after February 1, 1992; and

f. The proposal mitigates the impacts on the critical area(s) to ensure no net loss of critical area functions, while still allowing reasonable use of the site; and

g. The proposed activities will not jeopardize the continued existence of species listed by the state or federal government as endangered, threatened, sensitive, or documented priority species or priority habitats; and

h. The proposed activities will not cause significant degradation of groundwater or surface water quality.

3. Decisionmaker's Authority. The decisionmaker has the authority to approve an application for a reasonable use exception, approve with additional requirements above those specified in this title, require modification of the proposal to comply with specified requirements or local conditions, or deny the application if it fails to comply with the requirements of this section

4D. Required Written Findings and Determinations. A Reasonable Use Exception may be approved by the decisionmaker only if all of the findings are made in writing regarding the proposal and are supported by the record, as outlined in the decision criteria identified within EMC 14.20.050 (C)(2).

14.230.060 Current use assessment program.

A. An owner of agricultural land, timberland, or open space desiring current use Classification under Chapter 84.34 RCW may file for such current use Classification with the Pierce County assessor-treasurer's office.

B. The department shall notify the assessor-treasurer's office when restrictions on development occur on a particular site.

C. The assessor-treasurer's office shall consider the Critical Areas and buffer Buffering requirements of this title in determining the fair market value of land. Any owner of an undeveloped buffer Buffer which has been placed in a separate tract or tracts, protective easement, public or private land trust dedication, or other similarly preserved area shall have that portion of land assessed consistent with those restrictions. (Ord. 02-200 § 2).

Chapter 14.30

WETLANDS

Sections:

- 14.340.010 Purpose.
- 14.340.020 Wetland identification, delineation, mapping, and rating.
- 14.340.025030 Buffer standards—Wetlands
- 14.340.0340 Wetland review procedures.
- 14.340.0450 Allowed activities.
- 14.340.060 Mitigation requirements.
- 14.340.070 Appendices.

14.340.010 Purpose.

A. The purpose of this chapter is to avoid or, in appropriate circumstances, to minimize, rectify, reduce, or compensate for impacts arising from land development and other activities affecting wetlands, and to maintain and enhance the biological and physical functions and values of wetlands with respect to water quality maintenance, stormwater and floodwater storage and conveyance, fish and wildlife habitat, primary productivity, recreation, education, and historic and cultural preservation. When wetland impacts occur, mitigation will be required to achieve no net loss of wetlands in terms of acreage, function, and value. (Ord. 02-200 § 2).

B. This Chapter is intended to be consistent with the requirements of RCW Chapter 36.70A and to implement the goals and policies of the City's Comprehensive Plan for protecting Wetlands.

14.340.020 Wetland identification, delineation, mapping, and rating.

A. Designation. All areas within the city meeting the meeting the definition of "wetland" in EMC Chapter 14.2015 EMC are hereby designated as critical areas.

B. Identification and Delineation.

1. Wetlands shall be identified and delineated by a qualified wetland specialist/scientist in accordance with the approved federal wetland delineation manual and applicable regional supplements 1987 manual in use on January 1, 1995, by the United States Army Corps of Engineers (USACE) and the United States Environmental Protection Agency (EPA); the Department of Ecology's adopted 1997 Wetland Delineation Manual; and applicable subsequent Regulatory Guidance Letters.

2. A wetland delineation is valid for five (5) years, after which date the City shall require verification that the wetland boundaries and prior conditions have not changed to determine whether a revision or additional assessment is needed.

C. Mapping.

1. The approximate location and extent of wetlands are shown on maps maintained by the city.

2. These maps are useful as a guide for project applicants and/or property owners, but the maps do not provide a conclusive or definitive indication of a wetland presence or its extent.

3. Other wetlands may exist that do not appear on the maps; and some wetlands that appear on the maps may not meet all of the wetland designation criteria. The city shall update the maps periodically as new wetland areas are identified and as new wetland information becomes available.

D. Wetland Categories/Rating. Wetlands shall be rated according to the Washington Department of Ecology Wetland rating system, as set forth in the categorized by a qualified wetland scientist in accordance with the current version of the Washington State Wetland Rating System for Western Washington: 2014 Update (Ecology Publication #14-06-029, or as revised and approved by the Department of Ecology) (Hruby, 2014) and the appropriate rating forms.

approved by the Washington State Department of Ecology. The wetland shall also be classified according to the U.S. Fish and Wildlife Service "Classification of Wetlands and Deep Water Habitats in the U.S".

E. Illegal Modifications. Wetland rating categories shall not change due to illegal modifications made by the applicant or with the applicant's knowledge.

14.340.02530 Buffer standards – Wetlands.

A. Determining buffer widths. Buffer widths shall be measured horizontally from the perpendicular line established at the wetland edge as shown in Table 14.240.0530.1(+).

Table 14.340.02530.1(+)
Buffer Standards - Wetlands

Wetland Category	Buffer Width (Wetlands scores 3-4 habitat points)	Buffer Width (Wetland scores 5 habitat points)	Buffer Width (Wetland scores 6-7 habitat points)	Buffer Width (Wetland scores 8-9 habitat points)
Category I: Based on total score	75 ft.	105 ft.	165 ft.	225 ft.
Category I: Bogs and Wetlands of High Conservation Value	190 ft.	190 ft.	190 ft.	225 ft.
Category I: Forested	75 ft.	105 ft.	165 ft.	225 ft.
Category II (all)	75 ft.	105 ft.	165 ft.	225 ft.
Category III (all)	60 ft.	105 ft.	165 ft.	225 ft.
Category IV (all)	40 ft.	40 ft.	40 ft.	40 ft.

B. Required Measures to Minimize Impacts to Wetlands. Measures to minimize the impacts of the land use adjacent to wetlands shall be applied, as shown in Table 14.240.0530.2(2).

Table 14.340.02530.2(2)
Wetland Impact Minimization Measures

Disturbance	Required Measures to Minimize Impacts
Lights	• Direct lights away from any wetland
Noise	• Locate activity that generates noise away from any wetland

	For activities that generate relatively continuous, potentially disruptive noise, such as certain heavy industry or mining, establish an additional 10-foot heavily vegetated buffer strip immediately adjacent to the outer wetland- bufferBuffer
Toxic runoff	- Route all new, untreated runoff away from any wWetland while ensuring the wWetland is not dewatered - Establish covenants limiting use of pesticides within 150 feet of wWetlands - Apply integrated pest management
Stormwater runoff	- Retrofit stormwater detention and treatment for roads and existing adjacent development - Prevent channelized flow from lawns that directly enters the bufferBuffer - Use Low Impact Development techniques
Change in water regime	Infiltrate or treat, detain, and disperse into bufferBuffer new runoff from impervious surfaces and new lawns
Pets and human disturbance	- Use privacy fencing OR or plant dense vegetation to delineate bufferBuffer edge and to discourage disturbance using vegetation appropriate for the ecoregion - Place wWetland and its bufferBuffer in a separate tract or protect with a eConservation eEasement
Dust	Use BMPsbest-management-practices to control dust

C. Modification of ~~Buffer~~Buffer Widths. The standard ~~buffer~~Buffer widths of subsection (A) of this section may be modified by averaging, ~~reducing~~, or increasing.

1. ~~Buffer~~Buffer Averaging. ~~Buffer~~Buffer width averaging may be allowed only where the applicant demonstrates all of the following ~~through the submittal of a Wetland Report that is prepared by a qualified professional.~~

- ~~Buffer~~Buffer ~~e~~Encroachment is unavoidable.
- The ~~w~~Wetland contains variations in sensitivity due to existing physical characteristics.
- Width averaging will provide equal or greater protection of current ~~wetland~~Wetland functions and values.
- The total ~~buffer~~Buffer area after averaging is no less than the ~~buffer~~Buffer area prior to averaging.
- The minimum width of the buffer at any given point shall be at least seventy-five percent (75%) of the standard width, or twenty-five (25) feet, whichever is greater. ~~The width of the Buffer at any given point after averaging shall be no smaller than 75 percent of the standard Buffer.~~
- The averaging is accomplished within the project boundaries; ~~and~~.
- Measures will be taken to ensure that there is no loss of Wetland function due to the Buffer averaging.

2. Buffer Width Reductions. ~~Buffer width reduction up to a maximum of twenty-five (25) percent may be allowed when the applicant demonstrates the following circumstances:~~

- ~~Buffer~~ encroachment is unavoidable.

~~b. All exposed areas are stabilized with native vegetation, as appropriate.~~

~~c. The project includes a buffer enhancement plan as part of the mitigation required by EMC 14.30.060. The buffer enhancement plan shall use plant species which are native, noninvasive to the project area.~~

~~d. Buffer reduction with enhancement will provide equal or greater protection of current wetland functions and values.~~

~~e. Buffer reductions may not be used in combination with buffer averaging.~~

32. Buffer Buffer Increases.

a. The department Department may require increased buffer Buffer width(s) when any of the following are identified:

ai. A larger buffer Buffer is necessary to maintain viable populations of existing species;

bii. The wetland Wetland is used by, or associated with, species listed by the federal government or the state as endangered, threatened, sensitive, or as documented priority species or habitats, or essential or outstanding potential sites such as heron rookeries or raptor nesting areas;

eiii. The adjacent land is susceptible to severe erosion and erosion control measures will not effectively prevent adverse wetland Wetland impacts;

div. The adjacent land has minimal vegetative cover, or slopes greater than 20 percent. (Ord. 02-200 § 2).

b. If an applicant chooses not to apply the Wetland Impact Minimization Measures identified in Table 14.40.030.2, then the Wetland Buffers applicable to the site shall be per Table 14.40.030.3.

Table 14.40.030.3
Wetland Buffers without Minimization of Impacts

<u>Wetland Category</u>	<u>Buffer Width (Wetland scores 3-4 habitat points)</u>	<u>Buffer Width (Wetland scores 5 habitat points)</u>	<u>Buffer Width (Wetland scores 6-7 habitat points)</u>	<u>Buffer Width (Wetland scores 8-9 habitat points)</u>
<u>Category I: Based on total score</u>	<u>100 ft.</u>	<u>140 ft.</u>	<u>220 ft.</u>	<u>300 ft.</u>
<u>Category I: Bogs and Wetlands of High Conservation Value</u>	<u>250</u>			<u>300 ft.</u>
<u>Category I: Forested</u>	<u>100 ft.</u>	<u>140 ft.</u>	<u>220 ft.</u>	<u>300 ft.</u>
<u>Category II (all)</u>	<u>100 ft.</u>	<u>140 ft.</u>	<u>220 ft.</u>	<u>300 ft.</u>
<u>Category III (all)</u>	<u>80 ft.</u>	<u>140 ft.</u>	<u>220 ft.</u>	<u>300 ft.</u>
<u>Category IV (all)</u>	<u>50 ft.</u>			

14.340.0340 Wetland review procedures.

A. Wetland Report Requirements. When If the d Department's maps, sources, or field investigations indicate that the a proposed project area is may be located within 300 feet of a known or suspected w Wetland, an the applicant shall

Commented [DG21]: Per a conversation with the DoE, their buffer standards in the table above were already reduced. If we propose another 25 percent reduction, then we are no longer in line with their best available science supported buffer distances. See Page 13 of the Wetlands Guidance for Small Cities, Western WA Version. Buffer Width Reductions section removed.

submit a ~~w~~Wetland ~~e~~Critical ~~a~~Areas report prepared by a qualified ~~w~~Wetland ~~s~~Specialist~~e~~ntist. The ~~report~~ requirement ~~to provide a wetland critical areas report~~ may be waived if the ~~d~~Department determines that there are no potential direct ~~and/or~~ indirect impacts on ~~the w~~Wetlands or ~~its~~their ~~buffer~~Buffers that would result from the proposed development. Wetland ~~e~~Critical ~~a~~Areas reports shall comply with the requirements ~~of this Chapter~~established in EMC 14.30.070, Appendix A.

B. Single-Family Dwelling Wetland Review. Construction of a single-family dwelling and ~~r~~Regulated ~~a~~Activities accessory to a single-family dwelling, (such as driveways, gardens, fences, walls, lawns, ~~and/or~~ on-site septic systems,) may utilize an alternative ~~w~~Wetland review procedure, subject to the following:

1. Prior to issuance of a building permit, site development permit, or on-site sewage system permit, the applicant shall submit a single-family ~~w~~Wetland certification form completed by a ~~w~~Wetland ~~s~~Specialist that certifies either:
 - a. No regulated ~~w~~Wetlands are present within 300 feet of the project area; or
 - b. Wetlands are present within 300 feet of the project area, but the ~~buffer~~Buffer does not extend onto the project site.
2. The single-family certification form may be used only to authorize single-family dwellings and accessory structures. It may not be used for new ~~a~~Agricultural ~~a~~Activities, expansion of existing ~~a~~Agricultural ~~a~~Activities, forest practices activities, commercial projects, land divisions, ~~or~~and ~~buffer~~Buffer width modifications.

~~C. Time Limitation. Wetland delineations and reports that have been accepted by the city shall be valid for a period of five (5) years, unless the department determines that new information warrants revision of the delineation or report.~~

14.340.0450 Allowed activities.

A. ~~The following three (3) types of Wetlands identified in the paragraphs 1-3 The following wetlands~~ are exempt from the requirement to avoid impacts in EMC 14.10.070.B080(B) and may be altered if the impacts are fully mitigated based on the remaining mitigation sequencing actions in EMC 14.10.070.B080(B). In order to verify the following conditions, a ~~wetland~~Wetland ~~e~~Critical ~~a~~Areas ~~r~~Report meeting the requirements of EMC 14.340.070, Appendix A must be submitted.

1. All isolated Category IV ~~wetland~~Wetlands less than 4,000 square feet that:
 - a. Are not associated with ~~r~~Riparian areas or their ~~buffer~~Buffers;
 - b. Are not part of a ~~wetland~~Wetland ~~m~~Mosaic;
 - ~~e. Are not associated with shorelines of the state or their associated buffers;~~
 - ~~d.c.~~ Do not score 5 or more points for habitat functions based on current version of the Washington State Wetland Rating System for Western Washington (Ecology, 2014).
 - ~~e.d.~~ Do not contain a Priority Habitat or a Priority Area for a Priority Species identified by the Washington Department of Fish and Wildlife, federally listed species or their critical habitat, or ~~h~~Habitats of ~~and/or~~ ~~s~~Species of ~~l~~Local ~~i~~Importance as identified in EMC 14.450.0340(A).
2. Wetlands less than 1,000 square feet that meet the criteria specified in subsection (A)(1) of this section.
3. Utility projects within ~~wetland~~Wetland ~~buffer~~Buffers which have minor or short-duration impacts, as determined by the ~~department~~Department in accordance with the criteria below, and which do not significantly impact the function or values of ~~wetland~~Wetlands; provided, that such projects are constructed with ~~best management practices-BMPs~~ and additional ~~r~~Restoration measures are provided. Minor activities shall not result in the transport of sediment or increased stormwater. Such allowed minor utility projects shall meet the following criteria:
 - a. There is no practical alternative to the proposed activity with less impact on ~~wetland~~Wetlands;
 - b. The activity involves the placement of a utility pole, street signs, anchor, or vault or other small component of a utility facility; and
 - c. The activity involves disturbance of an area less than 75 square feet.

B. The activities listed below are allowed in ~~wetland~~Wetlands and their ~~buffer~~Buffers, and do not require submission of a ~~e~~Critical ~~a~~Area ~~r~~Report, except where such activities would result in a loss of the functions and values of a ~~wetland~~Wetland or ~~wetland~~Wetland ~~buffer~~Buffer. These activities include:

1. Activities in ~~w~~Wetlands in areas managed according to a special area management plan or other plan adopted by the ~~d~~Department and specifically designed to protect ~~w~~Wetland resources.
2. Trimming of vegetation for purposes of providing a ~~v~~View ~~e~~Corridors will be allowed. ~~The ; provided, that, trimming is shall be limited to view corridors of a maximum 20-foot width and that the benefit to fish and wildlife habitat may are not be reduced. No more than thirty (30) percent of the live crown of a tree may be removed. Trimming shall be limited to hand pruning of branches and vegetation and does. Trimming shall not include felling, topping, or the removal of trees. (Ord. 02-200 § 2).~~
3. Drilling for utilities ~~or/~~ utility corridors under a ~~wetland~~Wetland, with ~~an~~ entrance ~~or/~~ exit portal located completely outside of the ~~wetland~~Wetland ~~buffer~~Buffer, provided that the drilling does not interrupt the ground water connection to the ~~wetland~~Wetland or percolation of surface water down through the soil column. Specified studies by a hydrologist are necessary to determine whether the ground water connection to the ~~wetland~~Wetland or percolation of surface water down through the soil column will be disturbed.

14.340.060 Mitigation requirements.

A. Mitigation. Compensatory ~~m~~Mitigation is required for all unavoidable alterations to ~~w~~Wetlands or their ~~buffer~~Buffers, except for ~~buffer~~Buffer averaging when done in accordance with ~~this Chapter-EMC-14.30.025(C)(1).~~ Compensatory ~~m~~Mitigation actions shall replace functions affected by the alteration and shall provide equal or greater functions compared to the impacted ~~w~~Wetland. All projects must first demonstrate compliance with EMC Section 14.10.089070.B(B) (~~Mitigation Sequencing~~) prior to development of ~~e~~Compensatory ~~m~~Mitigation plans.

B. Preference of Mitigation Actions. Compensatory ~~wetland~~~~m~~Mitigation ~~of Wetland areas~~ shall occur in the following order of preference:

1. Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural or historic functions to a former or ~~d~~Degraded ~~wetland~~Wetland. For the purpose of tracking net gains in ~~wetland~~Wetland acres, ~~R~~Restoration is divided into:
 - a. Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural or historic functions to a former ~~wetland~~Wetland. ~~The Re-establishment must results in a gain in wetlandWetland acres (and functions).~~ Activities could include removing fill material, plugging ditches, or breaking drain tiles.
 - b. Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural or historic functions of a ~~d~~Degraded ~~wetland~~Wetland. ~~The Rehabilitation must results in a gain in wetlandWetland function but does not result in a gain in wetlandWetland acres. Activities could involve breaching a dike to reconnect wetlandWetlands to a floodplain or return tidal influence to a wetlandWetland~~
2. Creation: The manipulation of the physical, chemical, or biological characteristics of a site to develop a ~~wetland~~Wetland on an upland or deepwater site where a ~~wetland~~Wetland did not previously exist. Creation results in a gain in ~~wetland~~Wetland acres. Activities typically involve excavation of upland soils to elevations that will produce a ~~wetland~~Wetland hydroperiod, create hydric soils, and support the growth of hydrophytic plant species.
3. Enhancement: The manipulation of the physical, chemical, or biological characteristics of a ~~wetland~~Wetland site to heighten, intensify, or improve specific function(s) or to change the growth stage or composition of the vegetation present. Enhancement is undertaken for specified purposes such as water quality improvement, flood water retention, or wildlife habitat. Enhancement results in a change in some ~~wetland~~Wetland functions and can lead to a decline in other ~~wetland~~Wetland functions, but does not result in a gain in ~~wetland~~Wetland acres. Activities typically consist of planting vegetation, controlling non-native or invasive species, modifying site elevations or the proportion of open water to influence hydroperiods, or some combination of these activities

C. Approaches to Compensatory Mitigation. Mitigation for alterations to ~~wetland~~Wetland and their ~~buffer~~Buffers shall rely on the approaches listed below.

1. Wetland Mitigation Banks. Credits from a certified ~~wetland~~Wetland mitigation bank may be used to compensate for impacts within the service area specified in the mitigation bank instrument. Use of credits from a ~~wetland~~Wetland mitigation bank certified under Chapter 173-700 WAC is allowed if:
 - a. The ~~department~~Department determines that it would provide appropriate compensation for the proposed impacts; and
 - b. The impact site is located in the service area of the bank.
 - c. The proposed use of credits is consistent with the terms and conditions of the certified bank instrument.
 - d. Replacement ratios for projects using bank credits is consistent with replacement ratios specified in the certified mitigation bank instrument.
2. In-Lieu Fee Mitigation. Credits from an approved in-lieu-fee program may be used when all the following apply:
 - a. The approval authority determines that it would provide environmentally appropriate compensation for the proposed impacts.
 - b. The proposed use of credits is consistent with the terms and conditions of the approved in-lieu-fee program instrument.
 - c. Project using in-lieu-fee credits shall have debits associated with the proposed impacts calculated by the applicant's qualified ~~w~~Wetland Specialist~~scientist~~ using the credit assessment method specified in the approved instrument for the in-lieu-fee program.
 - d. The impacts are located within the service area specified in the approved in-lieu-fee instrument.
3. Permittee-responsible mitigation. In this situation, the permittee performs the mitigation after the permit is issued and is ultimately responsible for implementation and success of the mitigation. Permittee-responsible mitigation may occur at the site of the permitted impacts or at an off-site location within the same watershed. If available, the use of ~~wetland~~Wetland mitigation banks and in-lieu-fee programs are preferable to permittee-responsible mitigation.

D. Wetland mitigation ratios. The ratios listed in Table 14.340.060 apply to permittee-responsible mitigation. The first number ~~specifiesspecies~~ the acreage of replacement ~~wetland~~Wetlands required, and the second number specifies the acreage of ~~wetland~~Wetlands altered or relocated.

Table 14.340.060
Wetland Mitigation Ratios

Category and Type of Wetland	Creation or Re-establishment	Rehabilitation	Enhancement
Category I: High conservation value/bog	Not considered possible	Not considered possible	Not considered possible
Category I: Mature and old growth forest	6:1	12:1	24:1
Category I: Based on functions	4:1	8:1	16:1
Category II	3:1	6:1	12:1

Category III	2:1	4:1	8:1
Category IV	1.5:1	3:1	6:1

The director may increase the ratios under the following circumstances:

1. Uncertainty as to the probable success of the proposed restoration or creation;
2. Significant period of time between destruction and replication of wetland values;
3. Projected losses in functional value; or
4. The compensatory mitigation is off-site.

E. Wetland buffer mitigation. To mitigate unavoidable impacts to functions and values of wetland buffer, a minimum buffer ratio of 1:1 (alteration area: mitigation area) is required. This ratio assumes that creation or restoration of a wetland buffer with appropriate native vegetation is sufficient to compensate for the wetland buffer functions and values affected by alteration of an existing wetland buffer. If enhancement of an existing wetland buffer is proposed as mitigation, a higher mitigation ratio may be required. For any proposed wetland buffer activities, the applicant must demonstrate that the functions and values of the altered wetland buffer will be fully replaced by the proposed mitigation. The department may increase the buffer mitigation ratios under the following circumstances:

1. The replacement ratio needed to recover the lost functions and values of buffer area is greater than 1:1 based upon the existing type of vegetative cover of either the impact site or the proposed mitigation site.
2. Uncertainty exists as to the probable success of the proposed restoration or creation;
3. A significant period of time will elapse between impact and replication of wetland functions; or
4. The impact was an unauthorized impact.

F. Wetland and buffer mitigation plans. Compensatory wetland mitigation plans shall be consistent with Wetland Mitigation in Washington State – Part 2: Developing Mitigation Plans (Ecology, 2006); and Selecting Wetland Mitigation Sites Using a Watershed Approach (Ecology, 2009), or as revised. Mitigation plans shall comply with the requirements established in EMC 14.30.070, Appendix B.

14.30.070 Appendices.

A. Wetland Report.

B. Wetland Mitigation Plan

APPENDIX A

WETLAND REPORT

A. A wetland critical areas report shall, at a minimum, include the following:

1. The general critical areas report requirements in EMC Chapter 14.10.0802;
2. Map showing the location of all wetlands and required buffers within three hundred (300) feet of the proposed development;
3. An analysis of the onsite wetland(s) include the following site- and proposal-related information:

- a. Documentation of any fieldwork performed on the site, including, but not limited to, field ~~d~~Delineation data sheets for ~~d~~Delineations and ~~w~~Wetland rating forms;
 - b. Wetland acreage;
 - c. Wetland ~~e~~Category;
 - d. A discussion of the water sources supplying the ~~wetland~~Wetland and documentation of hydrologic regime (locations of inlet and outlet features, water depths throughout the ~~wetland~~Wetland, evidence of recharge or discharge);
 - e. A discussion of the functions of existing ~~wetland~~Wetlands, including vegetative, faunal, and hydrologic conditions; and
 - f. A description of the methodologies used to conduct the ~~w~~Wetland ~~d~~Delineations;
4. A discussion of measures, including avoidance, minimization, and mitigation, proposed to preserve existing ~~wetland~~Wetlands;
 5. A detailed discussion of the direct and/or indirect potential impacts on the ~~wetland~~Wetland by the project; and
 6. The ~~wetland~~Wetland mitigation plan requirements of EMC ~~Chapter 14.34~~0.070, Appendix B, if the activity will result in unavoidable impacts to ~~wetland~~Wetlands or their ~~buffer~~Buffers.

APPENDIX B

WETLAND MITIGATION PLAN

- A. A ~~wetland~~Wetland mitigation plan shall, at a minimum, include the general mitigation plan requirements in EMC Chapter 14.10.090 and the following information:
 - ~~1. The general mitigation plan requirements in EMC 14.10.083 and the following information:~~
 - ~~21.~~ Existing and proposed ~~wetland~~Wetland acreage;
 - ~~32.~~ Vegetative and faunal conditions;
 - ~~43.~~ Surface and subsurface hydrologic conditions including an analysis of existing and future hydrologic regime and proposed hydrologic regime for enhanced, created, or restored mitigation areas;
 - ~~54.~~ Relationship within watershed and to existing waterbodies;
 - ~~65.~~ Soils and substrate conditions, topographic elevations;
 - ~~76.~~ Existing and proposed adjacent site conditions;
 - ~~87.~~ Required ~~wetland~~Wetland ~~buffer~~Buffers (including any ~~buffer~~Buffer reduction or averaging and mitigation proposed to enhance ~~buffer~~Buffers);
 - ~~98.~~ Property ownership;
 - ~~109.~~ A discussion of ongoing management practices that will protect ~~wetland~~Wetlands after the project site has been developed, including proposed monitoring and maintenance programs;
10. A bond estimate for the installation, ~~(including site preparation, plant materials and installation, fertilizers, mulch,)~~ and the proposed monitoring and maintenance work for the required number of years, pursuant to EMC ~~Chapter 14.10.080~~070.E(E).

~~Chapter 14.40 FISH AND WILDLIFE HABITAT
CONSERVATION AREAS~~

Chapter 14.450

CRITICAL FISH AND WILDLIFE HABITAT CONSERVATION AREAS

Sections:

- 14.450.010 Purpose.
- 14.450.020 Fish and wildlife habitat conservation area identification and classification.
- 14.450.030 ~~Buffer~~ standards—Fish and wildlife habitat conservation areas.
- 14.450.040 Fish and wildlife habitat conservation area review procedures.
- 14.450.050 Allowed activities.
- 14.450.060 Alteration of Watercourses
- 14.450.070 Mitigation requirements.
- 14.450.080 Appendix

14.450.010 Purpose.

Many land use activities can impact the habitats of fish and wildlife. Special care must be taken in the management of lands that support fish and wildlife species to ensure that development occurs in a manner that is sensitive to their habitat needs. The purpose of this chapter is to identify fish and wildlife habitat conservation areas and establish habitat protection procedures and mitigation measures that are designed to result in no net loss of habitat functions and values. These areas are necessary for maintaining species in suitable habitats within their natural geographic distribution so that isolated subpopulations are not created as designated by WAC 365-190-080(5). (Ord. 02-200 § 2).

14.450.020 Fish and wildlife habitat conservation area identification and classification.

A. Designation. Fish and wildlife habitat conservation areas include:

1. Waters of the state. Waters of the state include lakes, rivers, ponds, streams, and all other surface waters and watercourses within jurisdiction of the state of Washington, as classified in WAC 222-16-030.
2. Areas with which federally designated endangered, threatened, and sensitive species have a primary association. The U.S. Fish and Wildlife Service and the National Marine Fisheries Service should be consulted for current federal listing status.
3. Areas with which state designated endangered, threatened, and sensitive species have a primary association. The Washington State Department of Fish and Wildlife should be consulted for current state listing status.
4. State priority habitats and areas associated with state priority species. The state Department of Fish and Wildlife should be consulted for current listing of priority habitats and species.
5. Habitats ~~of~~ and ~~s~~Species of ~~l~~ocal ~~i~~mportance. The following fish and wildlife species and their associated habitat areas shall be regulated under this chapter:
 - a. Fish. Coho salmon (*Oncorhynchus kisutch*), pink salmon (*Oncorhynchus gorbuscha*), chum salmon (*Oncorhynchus keta*), cutthroat trout (*Oncorhynchus clarkia*), and steelhead (*Oncorhynchus mykiss*).
 - b. Birds. Great blue heron (*Ardea herodias*) and green heron (*Butorides virescens*).
 - c. Areas with which state-listed monitor or candidate fish or wildlife species or federally listed candidate fish or wildlife species have a primary association, and which if altered may reduce the likelihood that the species will survive and reproduce over the long term.
 - d. Heron rookeries.

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6. Areas not included. Fish and wildlife habitat conservation areas does not include such artificial features or constructs as irrigation delivery systems, irrigation infrastructure, irrigation canals, or drainage ditches that lie within the boundaries of and are maintained by a port district or an irrigation district or company.

B. Habitat boundary survey. If the ~~department~~Department determines that a regulated habitat conservation area may be present within the project vicinity, the ~~department~~Department may require the habitat area to be delineated and/or mapped by a qualified ~~f~~Fisheries ~~b~~Biologist or ~~w~~Wildlife ~~b~~Biologist who is knowledgeable of fish and wildlife habitat within western Washington, or by the Washington Department of Fish and Wildlife. The boundary of aquatic habitats shall be the ordinary high water mark of the waterbody. The management recommendations for Washington's priority habitats and species or federal equivalent should be used as a tool for identifying and delineating wildlife habitat boundaries. The ~~city~~City may waive this requirement if there is adequate information available on the area proposed for development to determine the impacts of the proposed development and appropriate mitigating measures.

C. Mapping. The approximate location and extent of waters of the state and fish presence within the city are shown on maps maintained by the ~~city~~City. The ~~city~~City shall update the maps periodically as new information becomes available. The approximate location and extent of other fish and wildlife habitat conservation areas area shown on maps maintained by the Washington State Department of Fish and Wildlife and other state and federal agencies. These maps are to be used as a guide and do not provide definitive information about fish and wildlife habitat conservation area size or presence. Fish and wildlife habitat conservation areas may exist that do not appear on the maps.

D. Waters of the state classification. The ~~city~~City hereby adopts the water typing system specified in WAC 222-16-030, as described below:

1. Type S. All waters, within their ordinary high water mark, meeting the criteria as "shorelines of the state" and "shorelines of statewide significance" under RCW Chapter 90.58. As of the effective date of this title, there are no Type S streams within the City's city jurisdiction.
2. Type F: segments of natural waters other than Type S Waters, which are within the bankfull widths of defined channels and periodically inundated area of their associated ~~wetland~~Wetlands, or within lakes, ponds, or impoundments having a surface area of 0.5 acre or greater at seasonal low water and which in any case contain fish habitat.
3. Type Np: all segments of natural waters within the bankfull width of defined channels that are perennial non-fish habitat stream. Perennial stream waters do not go dry any time of a year of normal rainfall. However, for the purpose of water typing, Type Np Waters include the intermittent dry portions of the perennial channel below the uppermost point of perennial flow.
4. Type Ns: All segments of natural waters within the bankfull width of the defined channels that are not Type S, F, or Np waters. These are seasonal, non-fish habitat streams in which surface flow is not present for at least some portion of a year of normal rainfall and are not located downstream from any stream reach that is a Type Np Water. Ns Waters must be physically connected by an above-ground channel system to Type S, F, or Np Waters.

14.450.02530 ~~Buffer~~Buffer standards—Fish and wildlife habitat conservation areas.

A. Determining ~~buffer~~Buffer widths. ~~Buffer~~Buffers shall be required as set forth for each habitat type. The required ~~buffer~~Buffers shall be delineated, both on a site plan or plat, and on the property prior to approval of any regulated activity.

1. Aquatic habitat conservation areas.

- a. ~~Buffer~~Buffers for aquatic habitat conservation areas shall be based upon the water type ~~e~~Classification of the water body as specified in WAC 22-16-030. Refer to Table 14.450.02530 for the water types and the associated ~~buffer~~Buffer requirements.

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- b. The required ~~buffer~~Buffer width shall be measured in all directions from the ordinary high water mark.
- c. The required ~~buffer~~Buffer shall be extended to include any adjacent regulated ~~w~~Wetland(s), ~~l~~andslide ~~h~~Hazard ~~a~~Areas, and/or ~~e~~Erosion ~~h~~Hazard ~~a~~Areas and ~~required-buffer~~ their respective Buffers.

2. Non-aquatic habitat conservation areas. Appropriate ~~buffer~~Buffers for critical habitat areas and species not listed in Table 14.450.02530 shall be determined by the Washington Department of Fish and Wildlife or by a qualified ~~w~~Wildlife ~~b~~Biologist and documented in an approved ~~h~~Habitat ~~m~~Management ~~p~~Plan.

~~Table 14.450.02530~~
~~Buffer~~Buffer Standards

Water Type	Buffer Buffer Width ¹
Type S	150 ft. ²
Type F	100 ft.
Type Np	60 ft.
Type Ns	35 ft.

¹ In the event that ~~buffer~~Buffers for any habitat conservation area or other ~~e~~Critical ~~a~~Area are contiguous or overlapping, the landward-most edge of all such ~~buffer~~Buffers shall apply.

² As of the effective date of this title, there are no Type S streams within ~~the City's~~city jurisdiction.

~~BC.~~ Modification to ~~Buffer~~Buffer Width Requirements. The standard ~~buffer~~Buffer widths of subsection (A) of this section may be modified as follows:

1. ~~Buffer~~Buffer Width Reductions. A ~~buffer~~Buffer width reduction may be proposed through submittal of a ~~h~~Habitat ~~m~~Management ~~p~~Plan. ~~Buffer~~Buffer reductions of up to a maximum of 25 percent may be allowed when the applicant demonstrates the following circumstances:

- a. ~~Buffer~~Buffer ~~e~~Encroachment is unavoidable.
- b. The existing ~~buffer~~Buffer is predominately un-vegetated, composed of nuisance species, or is in an otherwise highly disturbed condition.
- c. ~~Buffer~~Buffer reduction with ~~e~~Enhancement will provide equal or greater protection of current habitat functions and values, and will not adversely affect salmon habitat.
- d. The ~~buffer~~Buffer reduction will not increase the risk of slope failure or downslope stormwater drainage impacts.
- e. The minimum width of the ~~buffer~~Buffer at any given point shall be at least seventy-five (75) percent of the standard width, or twenty-five (25) feet, whichever is greater.
- f. The project includes a ~~buffer~~Buffer ~~e~~Enhancement ~~p~~Plan as part of the mitigation required by EMC Chapter 14.450.060070. The ~~buffer~~Buffer ~~e~~Enhancement ~~p~~Plan shall use ~~n~~Native ~~p~~Plant species.

2. ~~Buffer~~Buffer Width Increases. The ~~department~~Department may require increased ~~buffer~~Buffer width(s) when any of the following are identified:

- a. A larger ~~buffer~~Buffer is necessary to maintain viable populations of existing species or protect the existing functions of the habitat area;

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- b. The adjacent land is susceptible to severe erosion and erosion control measures will not effectively prevent adverse habitat impacts;
- c. The adjacent land has minimal vegetative cover or slopes greater than 20 percent; or
- d. The habitat area is in an area of high tree blow down potential. In these cases the habitat area may be expanded an additional 50 feet on the windward side.

14.450.0340 Fish and wildlife habitat conservation area review procedures.

A. Habitat ~~m~~Management ~~p~~Plan. ~~When-If~~ the ~~d~~Department's maps, sources, or field investigations indicate that the proposed project area is located within 300 feet of a known or suspected fish or wildlife habitat conservation area, ~~then the an~~ applicant shall submit a ~~h~~Habitat ~~m~~Management ~~p~~Plan prepared by a qualified ~~f~~isheries ~~b~~Biologist or ~~w~~Wildlife ~~b~~Biologist. The requirement to provide a habitat conservation plan for habitat conservation areas may be waived if the ~~d~~Department determines that there are no potential direct ~~and/or~~ indirect impacts on designated species or habitats that would result from the proposed ~~d~~Development ~~A~~ctivity. Habitat ~~m~~Management ~~p~~Plans shall comply with the requirements established in EMC 14.450.0780, Appendix A.

14.450.0450 Allowed activities.

A. The following activities may be permitted in habitat conservation areas and/or their ~~buffer~~Buffer~~s~~ when all reasonable measures have been taken to avoid and mitigate adverse effects on species and habitats and a net loss of habitat functions will not occur. In order to verify the following conditions, a ~~h~~Habitat ~~m~~Management ~~p~~Plan meeting the requirements of EMC 14.450.0780, Appendix A must be submitted.

1. Stream Erosion Control Measures. New or replacement stream erosion control measures shall be subject to the following standards:
 - a. The proposal complies with the provisions set forth in ~~EMC~~ Chapter 14.110-~~EMC~~.
 - b. The required ~~h~~Habitat ~~m~~Management ~~p~~Plan demonstrates the following:
 - i. Natural stream processes will be maintained. The project will not result in increased beach erosion or alterations to, or loss of, stream substrate within one-quarter mile of the site.
 - ii. The stream erosion control measure will not adversely impact fish or wildlife habitat conservation areas or associated ~~wetland~~Wetlands.
2. Docks and launching ramps. Construction, reconstruction, repair, and maintenance of docks and public or private launching ramps are subject to all of the following:
 - a. The dock or ramp is located and oriented and constructed in a manner that minimizes adverse effects on water quality, movement of aquatic and terrestrial life, ecological processes, spawning habitat, and ~~wetland~~Wetlands.
 - b. Docks and ramps shall meet or exceed all relevant state and federal permit requirements.
3. Roads, Trails, Bridges, and Rights-of-Way. Construction of trails, roadways, bridges, and culverts may be allowed subject to the following standards:
 - a. There is no other feasible alternative route with less impact on the environment.
 - b. The crossing minimizes interruption of downstream movement of wood, ice, and gravel and the movement of all fish and wildlife.
 - c. Stream crossings, where necessary, shall only occur as near to the perpendicular with the stream as possible and be limited to the minimum width necessary.

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d. Road bridges and culverts are designed according to the latest versions of the Washington Department of Fish and Wildlife Water Crossing Design Guidelines (Washington Department of Fish and Wildlife) the Anadromous Salmonid Passage Facility Design guidelines (National Marine Fisheries Service).

e. Trails and associated viewing platforms shall be made of pervious materials.

4. Utility Facilities. New utility lines and facilities are permitted to cross habitat conservation areas if they comply with the following standards

a. Avoid fish and wildlife habitat conservation areas to the maximum extent possible.

b. Cross at an angle greater than 60 degrees to the centerline of the channel in streams or perpendicular to the channel centerline whenever boring under the channel is not feasible.

c. Crossings are contained within the footprint of an existing road or utility crossing where possible.

d. Avoid paralleling the stream or following a down-valley course near the channel.

e. Do not increase or decrease the natural rate of shore migration or channel migration.

f. Bore beneath the scour depth and hyporheic zone of the water body and channel migration zone (CMZ) where feasible.

5. Public Flood Protection Measures. New public flood protection measures and expansion of existing facilities may be approved, subject to the ~~d~~Department's review and approval of a ~~h~~Habitat ~~m~~Management ~~p~~Plan.

6. Instream Structures. New instream structures (e.g., such as, but not limited to, high flow bypass, sediment ponds, instream ponds, retention and detention facilities, dams, weirs, etc.) shall be allowed only as part of an approved ~~m~~Mitigation or ~~r~~Restoration project or watershed basin plan approved by the ~~department~~Department and upon acquisition of any required state or federal permits. The structure shall be designed to avoid modifying flows and water quality in ways that may adversely affect critical fish species. Proposals for placement of water quality, water quantity, or other instruments or structures within a stream to gather data, or as a mitigation measure, shall be exempt from the provisions of this title upon review and approval by the ~~department~~Department.

7. Stormwater Conveyance Facilities. Conveyance structures whose sole purpose is to convey stormwater already treated for quality, or water bypassed around water quality treatment facilities pursuant to an approved stormwater plan, may be constructed subject to the following standards:

a. No other feasible alternatives with less impact exist;

b. Mitigation for impacts is provided;

c. Stormwater conveyance facilities shall incorporate fish habitat features;

d. Vegetation shall be maintained and, if necessary, added adjacent to all open channels and ponds in order to retard erosion, filter out sediments, and shade the water.

8. On-Site Sewage Systems and Wells.

a. New on-site sewage systems and individual wells are permitted if accessory to an approved structure.

b. Repairs to failing on-site sewage systems associated with an existing structure shall be accomplished by utilizing one of the following methods that result in the least impact:

i. Connection to an available public sewer system;

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ii. Replacement with a new on-site sewage system located in a portion of the site that has already been disturbed by development and is located landward as far as possible, provided the proposed sewage system is in compliance with the provisions in EMC Chapter 14.8070-EMC; or

iii. Repair to the existing on-site septic system.

B. The activities listed below are allowed in habitat conservation areas and their ~~buffer~~ Buffers, and do not require submission of a ~~hHabitat mManagement pPlan~~, except where such activities would result in a loss of the functions and values of habitat conservation areas or ~~buffer~~ Buffers.

1. Vegetation Removal, Disturbance, and Introduction. Limited vegetation removal shall be allowed subject to EMC Section 18.90.180 -(4)Tree pPreservation) and the following standards in paragraphs a-b:

a. Hazard trees may be cut; provided, that:

i. The applicant submits a report from a certified arborist, licensed architect, or professional forester that documents the hazard and provides a replanting schedule for the replacement trees and receives written approval from the ~~city~~ City authorizing the tree removal;

ii. Tree cutting shall be limited to limbing and crown thinning, unless otherwise justified by the landowner's expert. Where limbing or crown thinning is not sufficient to address the hazard, trees should be topped to remove the hazard rather than cut at or near the base of the tree. All vegetation cuttings (tree stems, branches, tops, etc.) shall be left within the habitat area or ~~buffer~~ Buffer unless removal is warranted due to the potential for disease transmittal to other healthy vegetation;

iii. The landowner shall replace any trees that are felled or topped with new trees at a ratio of two replacement trees for each tree felled or topped. Tree species that are native and indigenous to the site shall be used;

iv. Hazard trees determined to pose an imminent threat or danger to public health or safety, or to public or private property, or serious environmental degradation may be removed or topped by the landowner prior to receiving written approval from the ~~department~~ Department; provided, that within 14 days following such action, the landowner shall submit the necessary report and replanting schedule demonstrating compliance with subsections (B)(1)(a)(i) through (iii) of this section.

b. Trimming of vegetation for purposes of providing ~~a vView eCorridors~~ will be allowed. ~~provided, that The trimming is shall be limited to view corridors of a maximum 20-foot width-feet in width or less, that no more than 30 percent of the live crown is removed, and that- and the benefits to fish and wildlife habitat are not may not be reduced. No more than 30 percent of the live crown may be removed. Trimming shall be limited to hand pruning of branches and vegetation and does -Trimming shall not include felling, topping, or the removal of trees.~~

2. Fencing. Fencing shall be placed in such a manner as to maintain wildlife movement corridors and not create any fish passage blockages. The ~~department~~ Department shall approve the location, type, and height of any proposed fencing.

14.450.0560 Alteration of Watercourses

Alteration of Watercourses. Any alteration of a watercourse shall comply with the following standards:

1. The ~~city~~ City will notify adjacent communities and the Washington State Department of Ecology prior to any alteration or relocation of a watercourse proposed by the applicant and submit evidence of such notification to the Federal Insurance Administration.

2. The ~~city~~ City shall require that maintenance be provided within the altered or relocated portion of said watercourse, so that the flood-carrying capacity is not diminished. Therefore, if the maintenance program calls for future cutting of planted ~~nNative vVegetation~~ used in performing the alteration, the system shall be oversized at the time of construction to compensate for said vegetation growth or any other natural factor that may need future maintenance.

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3. Alterations and relocations, including stabilization projects, shall not degrade fish habitat and shall be subject to the following provisions:

- a. Structures that cross all watercourses and water bodies shall meet fish habitat requirements of the Washington Department of Fish and Wildlife.
- b. Any culverts that are used on fish-bearing watercourses shall be arch/bottomless culverts or equivalent that provide comparable fish protection, and must meet fish habitat requirements of the latest edition of Washington Department of Fish and Wildlife's Design Manual for Culverts.
- c. Bridges or other crossings shall allow for uninterrupted downstream movement of wood and gravel, be as close to perpendicular to the watercourse as possible, and be designed to minimize fill and to pass the ~~b~~Base ~~f~~Flood flows.
- d. Watercourse alterations shall maintain natural meander patterns, channel complexity, and floodplain connectivity. Where feasible, such characteristics shall be restored as part of the watercourse alteration.
- e. The applicant shall identify the channel migration zone for the watercourse at the project site and for a reasonable reach upstream and downstream of the site, and shall not undertake actions as part of the alteration that would in any way inhibit movement of the channel.
- f. Existing culverts that do not meet fish habitat requirements shall be removed or replaced as part of the approved watercourse alteration project.
- g. Watercourse alteration projects shall not result in a fish blockage of side channels. Known fish barriers into side channels shall be removed as part of the approved watercourse alteration project.
- h. For any watercourse alteration of a Type S or F water (pursuant to EMC 14.450.020.D(~~D~~)) whose channel is subject to migration, bioengineered (soft) armoring of streambanks is required to allow for woody debris recruitment, gravels for spawning, and creation of side channels. The bioengineering technique used must be designed in accordance with the latest edition of Washington Department of Fish and Wildlife's Integrated Streambank Protection Guidelines.

4. The project ~~e~~Engineer shall design the watercourse alteration so the activity does not increase the water surface elevation (zero-rise); decrease the capacity, storage, and conveyance of the watercourse; or cause an adverse impact to adjacent, cross-channel, or upstream or downstream properties. (Ord. 17-492 § 2 (Exh. A); Ord. 02-200 § 2).

14.450.0670 Mitigation requirements.

A. Mitigation. Compensatory ~~m~~Mitigation is required for all unavoidable alterations to fish and wildlife habitat conservation areas or their ~~buffer~~Buffers. Mitigation of alteration to habitat areas shall achieve equivalent or greater biological functions. Mitigation shall address each functional attribute affected by the alteration to achieve functional equivalency or improvement on a per function basis. Mitigation elements to be addressed may include, but are not limited to: ~~r~~Restoration of previously ~~d~~Degraded areas and key habitat features, ~~r~~Restoration of ~~r~~Riparian vegetation communities to provide shade and large woody debris, addition of large woody debris, and installation of upland habitat features. All projects must first demonstrate compliance with EMC 14.10.080070.B (~~B~~) (~~Mitigation-Sequencing~~) prior to development of ~~e~~Compensatory ~~m~~Mitigation plans.

B. Type of mitigation required. In determining the extent and type of mitigation required, the ~~department~~Department may consider all of the following:

1. The ecological processes that affect and influence habitat structure and function within the watershed or sub-basin;
2. The individual and cumulative effects of the action upon the functions of the ~~e~~Critical ~~a~~Area and associated watershed;

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3. Observed or predicted trends regarding the gains or losses of specific habitats or species in the watershed, in light of natural and human processes;
4. The likely success of the proposed mitigation measures;
5. Effects of the mitigation actions on neighboring properties; and
6. Opportunities to implement ~~r~~Restoration actions formally identified by an adopted shoreline ~~r~~Restoration plan, watershed planning document prepared and adopted pursuant to Chapter [90.82](#) RCW, a salmonid recovery plan or project that has been identified on the Salmon Recovery Board Habitat Project List or by the Washington State Department of Fish and Wildlife as essential for fish and wildlife habitat ~~e~~Enhancement.

C. Location. Compensatory ~~m~~Mitigation shall be provided on-site or off-site in the location that will provide the greatest ecological benefit to the species ~~and/or~~ habitats affected and have the greatest likelihood of success. Mitigation shall occur as close to the impact site as possible, within the same sub-basin, and in a similar habitat type as the permitted alteration. ~~unless-If the applicant demonstrates to the satisfaction of the department through~~ ~~submits~~ a watershed- or landscape-based analysis that ~~demonstrates~~ mitigation within an alternative sub-basin of the same watershed would have greater ecological benefit. ~~then the Director may approve the demonstrated alternate mitigation.~~

D. Mitigation plans. When required by this chapter, the applicant shall submit a fish and wildlife habitat conservation area mitigation plan meeting the requirements of ~~this Chapter-EMC 14.40.060.~~

14.450.070. Appendix.APPENDIX A

HABITAT MANAGEMENT PLAN

A. A ~~h~~abitat ~~m~~anagement ~~p~~lan shall, at a minimum, include the following:

1. The general ~~e~~ritical ~~a~~reas report requirements ~~in EMC 14.10.082.~~
2. Identification of any endangered, threatened, sensitive, or candidate species that have a primary association with habitat on the project area;
3. Map showing the location of the ordinary high water mark and ~~or~~ locations of wildlife habitat conservation area(s) and their ~~buffer~~~~Buffers~~ ~~in accordance with EMC 14.40.025;~~
4. The vegetative, faunal, topographic, and hydrologic characteristics of the habitat conservation area;
5. A discussion of any federal, state, or local special management recommendations, including Washington Department of Fish and Wildlife habitat management recommendations, that have been developed for species or habitat located on or adjacent to the project area;
6. A detailed discussion of the direct and/or indirect potential impacts on the habitat conservation area by the project. Such discussion shall include a discussion of the ongoing management practices that will protect habitat after the project site has been developed;
7. ~~The m~~itigation plan, ~~requirements of EMC 14.10.083~~ if the activity will result in unavoidable impacts to habitat conservation areas. Mitigation measures may include:
 - a. Prohibition or limitation of use and development activities within the habitat conservation area;
 - b. Retention of vegetation and/or re-vegetation of areas/habitats critically important to species;
 - c. Special construction techniques;
 - d. Implementation of erosion and sediment control measures;
 - e. Habitat ~~r~~estoration or ~~e~~nhancement, (i.e., fish passage barrier removal);
 - f. Seasonal restrictions on construction activities on the subject property;
 - g. Clustering of development activities on the subject property; and/or
 - h. Any other requirements and/or recommendations from federal, state, or local special management recommendations, including the Washington State Department of Fish and Wildlife's habitat management guidelines.

~~Chapter 14.50 CRITICAL-AQUIFER RECHARGE AREAS~~**Chapter 14.560****CRITICAL-AQUIFER RECHARGE AND WELLHEAD PROTECTION AREAS**

Sections:

- 14.560.010 Purpose.
- 14.560.020 Critical ~~a~~Aquifer ~~r~~Recharge ~~a~~Areas identification.
- 14.560.030 Critical ~~a~~Aquifer ~~r~~Recharge ~~a~~Areas review procedures.
- 14.560.040 Critical ~~a~~Aquifer ~~r~~Recharge ~~a~~Areas standards.

14.560.010 Purpose.

The purpose of this chapter is to protect ~~e~~Critical ~~a~~Aquifer ~~r~~Recharge ~~a~~Areas from degradation or depletion resulting from new or changed land use activities. Due to the exceptional susceptibility and ~~or~~ vulnerability of groundwater underlying aquifer recharge areas to contamination and the importance of such groundwater as sources of public water supply, it is the intent of this chapter to safeguard groundwater resources and ~~w~~Wellhead ~~p~~Protection ~~a~~Areas by mitigating or precluding future discharges of ~~any~~ ~~e~~Contaminants from new land use activities. (Ord. 02-200 § 2).

14.560.020 Critical ~~a~~Aquifer ~~r~~Recharge ~~a~~Areas identification.

A. General. Critical ~~a~~Aquifer ~~r~~Recharge ~~a~~Areas are areas that have a critical recharging effect on groundwater used for potable water supplies and/or that demonstrate a high level of susceptibility or vulnerability to groundwater contamination from land use activities. These areas include the following:

1. Aquifer Recharge Areas. The boundaries of the two highest DRASTIC zones that are rated 180 and above on the DRASTIC index range, as identified in Map of Groundwater Pollution Potential, Edgewood, Washington, National Water Well Association, U.S. Environmental Protection Agency;
2. Wellhead Protection Areas. Wellhead ~~p~~Protection ~~a~~Areas that lie within the 10-year time of travel zone boundary of a group A public water system well, as delineated by the water system purveyor or its designee, pursuant to WAC 246-290-135; and
3. Sole Source Aquifers. Sole source aquifers are areas that have been designated by the U.S. Environmental Protection Agency pursuant to the Federal Safe Water Drinking Act. As of the effective date of this title, there are no designated sole source aquifers within city limits.

14.560.030 Critical ~~a~~Aquifer ~~r~~Recharge ~~a~~Areas review procedures.

A. General Requirements

1. The ~~city~~City's ~~e~~Critical ~~a~~Aquifer ~~r~~Recharge ~~a~~Areas map provides an indication of where ~~e~~Critical ~~a~~Aquifer ~~r~~Recharge ~~a~~Areas are located within the city and the map is updated as necessary.
2. Any proposed development located within protection ~~e~~Critical ~~a~~Aquifer ~~r~~Recharge ~~a~~Areas shall comply with the standards set forth in EMC Chapter 14.560.040.
3. Any hazardous uses, ~~as defined in EMC 14.50.040~~, shall require the submittal of a ~~h~~Hydrogeologic ~~a~~Assessment, as set forth in subsection (B) of this section.
4. The ~~d~~Department may waive ~~some of the~~ ~~e~~Critical ~~a~~Area protective measure provisions contained in EMC Chapter 14.10.080, as deemed appropriate by the ~~Department~~ Director and can be shown to meet the requirements associated with Best Available Science, if required.

B. Hydrogeologic Assessment.

1. The ~~h~~Hydrogeologic ~~a~~Assessment shall be prepared, signed, and dated by a state licensed ~~g~~Geologist ~~or~~ ~~h~~Hydrogeologist.

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2. The ~~h~~Hydrogeologic ~~a~~Assessment shall be submitted in the form of a report detailing the subsurface conditions, the design of a proposed land use action, and the facilities operation which indicates the susceptibility and potential for contamination of groundwater supplies. The ~~h~~Hydrogeologic ~~a~~Assessment shall, at a minimum, include the general ~~e~~Critical ~~a~~Area report requirements of EMC ~~Chapter 14.10.082~~ in addition to the following ~~fifteen (15) items listed in paragraphs a-o~~:

- a. Information sources;
- b. Geologic setting – includes well logs or borings used to identify information;
- c. Background water quality;
- d. Groundwater elevations;
- e. Location ~~and/~~ depth to perched water tables;
- f. Recharge potential of ~~a f~~Facility site, ~~-(i.e., the permeability and/~~transmissivity);
- g. Groundwater flow direction and gradient;
- h. Current available data on wells located within one-quarter mile of the site;
- i. Current available data on any spring within one-quarter mile of the site;
- j. Surface water location and recharge potential;
- k. Water source supply to ~~a f~~Facility, ~~(e.g., a high capacity well)~~;
- l. Any sampling schedules necessary;
- m. Discussion of the effects of the proposed project on the groundwater resource;
- n. Discussion of potential mitigation measures, should it be determined that the proposed project will have an adverse impact on groundwater resources; and
- o. Any other information as required by the TPCHD, including information required under Washington Department of Ecology Publication 97-30.

C. Storage Tank Permits. In addition to the requirements set forth in this title, the following agencies also have the authority to regulate the installation, repair, replacement, or removal of ~~any UST~~underground-storage-tanks:

1. The Pierce County Fire Prevention Bureau regulates and authorizes permits for ~~all UST~~underground-storage-tanks, pursuant to the International Fire Code (Article 79) and this chapter.
2. The Washington Department of Ecology regulates and authorizes permits for ~~all UST~~underground-storage-tanks (Chapter 173-360 WAC).
3. The TPCHD regulates and authorizes permits for the removal of ~~any UST~~underground-storage-tanks (Pierce County Code, Chapter 8.34). (Ord. 02-200 § 2).

~~14.560.040~~ Critical ~~a~~Aquifer ~~r~~Recharge ~~a~~Areas standards.

A. General. All ~~r~~Regulated ~~a~~Aactivities that are not exempt or prohibited under the provisions of this chapter shall ensure sufficient groundwater recharge. In order to achieve sufficient groundwater recharge, the applicant shall comply with ~~the e~~City's adopted stormwater manual, ~~EMC Chapter 13.05, -(Chapter 13.05-EMC)~~ and demonstrate that the total post-development infiltration rate for the project area will be equal to or better than the predevelopment rate.

B. Prohibited Uses. Landfills (other than inert and demolition landfills), Class I, III, and IV underground injection wells, metals mining, wood treatment facilities, pesticide manufacturing, petroleum refining facilities (including

~~Chapter 14.50 CRITICAL-AQUIFER RECHARGE AREAS~~

distilled petroleum facilities), the storage of large volumes of petroleum products, and other uses or activities determined by the ~~department~~Department to have a significant adverse impact on ground water are prohibited within ~~eCritical aAquifer rRecharge aAreas~~.

C. Exemptions. In addition to the general exemptions listed in EMC ~~Section 14.230.030~~Section 14.230.030, the following uses or activities are exempt from the requirements of this chapter:

1. Sewer lines and appurtenances;
2. Biosolids and ~~sSludge lLand aApplication sSites~~; provided, that these activities comply with the requirements established in Chapters 173-200, 173-216, and 173-304 WAC; and
3. Single-family and two-family dwellings and associated accessory structures.

D. Agricultural Activities. New ~~aAgricultural aActivities~~ that do not involve hazardous substance handling or application are allowed within an aquifer recharge or ~~wWellhead pProtection aArea~~ subject to the following:

1. The applicant is required to submit a farm management plan prepared by the USDA, NRCS, Pierce County Conservation District, or Washington State University, Cooperative Extension Office, that certifies that water quality and quantity within the aquifer recharge area is maintained. The farm management plan shall at a minimum address the following:
 - a. The limits of the proposed ~~aAgricultural aActivities~~.
 - b. The proposed scope of ~~aAgricultural aActivities~~, including the use of any pesticides, fertilizers, or other chemicals.
 - c. The existing nitrate levels on the site and any proposed increases in nitrate levels.
2. Integrated pest management (IPM) practices for pest control and ~~best-management practices (BMPs)~~ for the use of fertilizers, as described by the Washington State University, Pierce County Cooperative Extension Office, shall be utilized.
3. Nitrate levels at down-gradient property line shall not exceed 2.5 mg/L or, if the background nitrate concentration exceeds 2.5 mg/L, that the concentration will not be increased more than 0.1 mg/L.
4. Additional protective measures may be required if deemed necessary by the ~~department~~Department or TPCPD to protect public health or safety.

~~ED~~. Nonhazardous Uses. Subdivision of land as defined in EMC Title 16, residential structures housing three or more units, and all commercial and industrial sites or activities that do not include or involve hazardous substance processing or handling in ~~protection-eCritical aAquifer rRecharge aAreas~~ are allowed subject to the following standards:

1. Stormwater quality treatment and flow control shall be provided in conformance with the ~~city~~City's adopted stormwater management manual.
2. Floor drains shall not be allowed to drain to the stormwater system and must be designed and installed to meet the Uniform Plumbing Code (UPC) Section 303.
3. If any roof venting carries ~~a eContaminants~~, then the portion of the roof draining from this area must go through pretreatment pursuant to UPC Section 304(b).
4. All nonresidential vehicle washing must be self-contained or be discharged to a sanitary sewer system, if approved by the sewer utility, and is subject to UPC Sections 708 and 711.

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5. Integrated pest management (IPM) practices for pest control and ~~best-management-practices~~ (BMPs) for the use of fertilizers as described by the Washington State University, Pierce County Cooperative Extension Office, shall be utilized.
6. For new or changes in ~~r~~Regulated ~~a~~Activities served by on-site sewage systems, the applicant must demonstrate to the TPCHD that nitrate levels at the down-gradient property line will not exceed 2.5 mg/L or that if the background nitrate concentration exceeds 2.5 mg/L the concentration will not be increased more than 0.1 mg/L.
7. Additional protective measures may be required if deemed necessary by the ~~department~~Department or TPCHD to protect public health or safety.

~~FE~~ Hazardous Uses – General. Hazardous substance processing or handling, hazardous waste treatment and storage facilities, ~~a~~Animal ~~e~~Containment ~~a~~Areas, and solid waste facilities that require a solid waste handling permit from the TPCHD, requiring approval from the ~~city~~City, shall be allowed only in ~~protection-e~~Critical ~~a~~Aquifer ~~r~~Recharge ~~a~~Areas subject to review and approval of a ~~h~~Hydrogeologic ~~a~~Assessment by the ~~d~~Department and review by the TPCHD. The ~~d~~Department has the authority to apply whatever standards deemed necessary to mitigate any negative impacts that may be associated with the proposed development and will consider comments by TPCHD.

~~GF~~ Hazardous Uses – Storage Tanks. In addition to the requirement to submit a ~~h~~Hydrogeologic ~~a~~Assessment, the following standards apply to storage tanks in ~~protection-e~~Critical ~~a~~Aquifer ~~r~~Recharge ~~a~~Areas:

1. Underground Tanks. All new underground storage facilities used or to be used for the underground storage of hazardous substances or hazardous wastes shall be designed and constructed so as to:
 - a. Prevent releases due to corrosion or structural failure for the operational life of the tank;
 - b. Be protected against corrosion, constructed of noncorrosive material, steel clad with a noncorrosive material, or designed to include a secondary containment system to prevent the release or threatened release of any stored substance;
 - c. Use material in the construction or lining of the tank which is compatible with the substance to be stored; and
 - d. The installation of ~~any UST~~underground-storage-tanks shall also be subject to other state and local permit requirements.
2. Aboveground Tanks.
 - a. No new aboveground storage ~~f~~Facility or part thereof shall be fabricated, constructed, installed, used, or maintained in any manner which may allow the release of a hazardous substance to the ground, groundwater, or surface waters ~~of the city~~ within ~~any e~~Critical ~~a~~Aquifer ~~r~~Recharge ~~a~~Areas.
 - b. A new aboveground tank that will contain a hazardous substance will require both a double-walled tank and a secondary containment system separate from the tank that will hold 110 percent of the tank's capacity. The secondary containment system or dike system must be designed and constructed to contain material stored in the tank(s). (Ord. 16-482 § 2 (Exh. C); Ord. 02-200 § 2).

Chapter 14.60

VOLCANIC HAZARD AREAS

Sections:

- 14.60.010 Purpose.
- 14.60.020 Volcanic ~~h~~Hazard ~~a~~Areas.
- 14.60.030 Volcanic ~~h~~Hazard ~~a~~Area review procedures.
- 14.60.040 Volcanic ~~h~~Hazard ~~a~~Area standards.

14.60.010 Purpose.

At over 14,411 feet high, Mount Rainier dominates the skyline of the southern Puget Sound region. This glacier-clad mountain is a dormant volcano capable of generating large floods and lahars which have historically reached the floors of the lowlands south of the ~~city~~City of Seattle and out to Commencement Bay in the Port of Tacoma, spewing ash from pyroclastic eruptions. The purpose of this chapter is to promote the public health, safety, and general welfare of the citizens of Edgewood by providing standards that minimize the loss of life that may occur as a result of volcanic events emanating from Mount Rainier. (Ord. 02-200 § 2).

14.60.020 Volcanic ~~h~~Hazard ~~a~~Areas.

A. General. Volcanic ~~h~~Hazard ~~a~~Areas are areas subject to pyroclastic flows, lava flows, and inundation by ~~d~~Debris ~~f~~Flows, ~~m~~Mudflows, or related flooding resulting from geologic and volcanic events on Mount Rainier.

B. Volcanic Hazard Area Categories. Volcanic ~~h~~Hazard ~~a~~Areas are areas that have been historically inundated by Case I, Case II, or Case III lahars or other types of ~~d~~Debris ~~f~~Flow; affected by pyroclastic flows, pyroclastic surges, lava flows, or ballistic projectiles in future eruptions; or are located in other drainages expected to be inundated by a future Case I, Case II, or Case III ~~d~~Debris ~~f~~Flow. Volcanic ~~h~~Hazard ~~a~~Areas are classified into the following categories:

1. Inundation Zone for Case I Lahars. Areas that could be affected by cohesive lahars that originate as enormous avalanches of weak chemically altered rock from the volcano. Case I lahars can occur with or without eruptive activity. The average reoccurrence rate for Case I lahars on Mount Rainier is about 500 to 1,000 years.
2. Inundation Zone for Case II Lahars. Areas that could be affected by relatively large non-cohesive lahars, which most commonly are caused by the melting of snow and glacier ice by hot rock fragments during an eruption, but which can also have a non-eruptive origin. The average time interval between Case II lahars from Mount Rainier is near the lower end of the 100- to 500-year range, making these flows analogous to the so-called "100-year flood" commonly considered in engineering practice.
3. Inundation Zone for Case III Lahars. Areas that could be affected by moderately large debris avalanches or small non-cohesive lahars, glacial outburst floods, or other types of ~~d~~Debris ~~f~~Flow, all of non-eruptive origin. The average time interval between Case III lahars at Mount Rainier is about one to 100 years.
4. Pyroclastic Flow Hazard Zone. Areas that could be affected by pyroclastic flows, pyroclastic surges, lava flows, and ballistic projectiles in future eruptions. During any single eruption, some drainages may be unaffected by any of these phenomena, while other drainages are affected by some or all phenomena. The average time interval between eruptions of Mount Rainier is about 100 to 1,000 years.

C. ~~Time~~-Travel ~~Time~~ Zones. The ability to evacuate people from within a ~~v~~Volcanic ~~h~~Hazard ~~a~~Area correlates to the distance from the source of an event, (i.e., those areas closest to the event will have less time to evacuate than those areas farther away from the source of an event). The amount of time that is anticipated for a ~~d~~Debris ~~f~~Flow, lahar, flood, or avalanche to travel geographically has been classified into the following ~~time~~-travel ~~time~~ zones:

1. Time Zone A. Time Zone A is an estimated one-hour travel distance from the source of the event.

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2. Time Zone B. Time Zone B is an estimated one and one-half hour travel distance from the source of the event.
3. Time Zone C. Time Zone C is an estimated two-hour travel distance from the source of the event.
4. Time Zone D. Time Zone D is an estimated two hours or greater travel distance from the source of the event. (Ord. 02-200 § 2).

14.670.030 Volcanic hHazard aArea review procedures.

A. The City's Critical Areas Atlas – Volcanic Hazard Area Map provides an indication of where ~~v~~Volcanic hHazard aAreas are located within the city.

B. The ~~department~~Department will complete a review of the ~~v~~Volcanic hHazard aArea maps for any development proposal to determine whether the proposed project area for a regulated activity falls within a ~~v~~Volcanic hHazard aArea.

C. When the ~~department~~Department's maps or sources indicate that the proposed project area for a regulated activity is located within a ~~v~~Volcanic hHazard aArea, the ~~department~~Department shall apply the standards for ~~r~~Regulated aActivities in ~~v~~Volcanic hHazard aAreas, as set forth in EMC ~~Chapter~~ 14.670.040.

14.670.040 Volcanic hHazard aArea standards.

The following standards apply within the inundation zones for Case I, II, and III lahars and within the pyroclastic flow hazard zone (refer to Table 14.670.040):

- A. Bonus densities, as set forth in EMC 18.90.080, Housing incentives program, shall be prohibited.
- B. All ~~e~~Critical ~~f~~Facilities, ~~as defined in Chapter 14.15 EMC,~~ shall be prohibited, except sewer collection facilities and any other utilities that are located underground or not likely to cause harm to people or the environment if inundated by a lahar.
- C. Special ~~e~~Occupancy ~~s~~Structures, as defined in ~~EMC Chapter Section 14.1520.107-EMC,~~ are subject to the following:
 1. ~~Time-Travel~~ Time Zone A. Special ~~e~~Occupancy ~~s~~Structures located within the ~~Time-Travel~~ Time Zone A area shall be limited to a maximum 100-person occupancy.
 2. ~~Time-Travel~~ Time Zone B. Special ~~e~~Occupancy ~~s~~Structures located within the ~~Time-Travel~~ Time Zone B area shall be limited to a maximum 500-person occupancy.
 3. ~~Time-Travel~~ Time Zone C. Special ~~e~~Occupancy ~~s~~Structures located within the ~~Time-Travel~~ Time Zone C area shall be limited to a maximum 1,000-person occupancy.
 4. ~~Time-Travel~~ Time Zone D. Special ~~e~~Occupancy ~~s~~Structures located within the ~~Time-Travel~~ Time Zone D area shall be limited to a maximum 5,000-person occupancy.

Table 14.760.040 Volcanic Hazard Area Standards

Facility/Occupancy List	Case I Lahar Inundation Zone	Case II Lahar Inundation Zone	Case III Lahar Inundation Zone	Pyroclastic Flow Hazard Zone
Bonus Densities ⁽¹⁾	Not Allowed	Not Allowed	Not Allowed	Not Allowed
Critical Facilities ⁽²⁾	Not Allowed	Not Allowed	Not Allowed	Not Allowed
Special Occupancies ⁽³⁾	In Time Travel Zone A – Limited to 100 person occupant load. In Time Travel Zone B – Limited to 500 person occupant load.			

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Facility/Occupancy List	Case I Lahar Inundation Zone	Case II Lahar Inundation Zone	Case III Lahar Inundation Zone	Pyroclastic Flow Hazard Zone
	In Time Travel Zone C – Limited to 1,000 person occupant load. In Time Travel Zone D – Limited to 5,000 person occupant load.			
Other Occupancies	No Limitation	No Limitation	No Limitation	No Limitation

(1) Bonus density as set forth in EMC ~~Chapter~~ 18.90.080, Housing incentives program.

(2) Essential facility as defined in EMC Chapter 14. ~~2015 EMC~~.

(3) Special ~~Occupancy~~ ~~sStructures~~ as defined in EMC Chapter 14. ~~2015 EMC~~.

(Ord. 02-200 § 2).

Chapter 14.70

FLOOD HAZARD AREAS

Sections:

- 14.70.010 Purpose.
- 14.70.015020 Flood Insurance Study Adoption
- 14.80.030 Definitions.
- 14.70.0240040 Flood hHazard aAreas.
- 14.70.0350050 Flood hHazard aArea review procedures.
- 14.70.0460060 Flood hHazard aArea standards.
- 14.80.070 Variances to Flood Hazard Areas
- 14.70.05100080 Appendices.

14.70.010 Purpose.

The purpose of this chapter is to promote the public health, safety, and general welfare of the citizens of Edgewood. The standards contained in this chapter are intended to minimize public and private losses due to flood conditions in fFlood hHazard aAreas and provide special criteria necessary for rRegulated aActivities located within fFlood hHazard aAreas of the city. The following statements describe the purpose of this chapter:

- A. Protect human life and health;
- B. Minimize expenditure of public money and costly flood control projects;
- C. Minimize the need for rescue and relief efforts associated with flooding;
- D. Minimize prolonged business interruptions;
- E. Minimize damage to public infrastructure, facilities and utilities;
- F. Minimize damage to critical fish and wildlife habitat areas;
- G. Minimize net loss of ecological functions of floodplains;
- H. Ensure that potential buyers are notified that property is in a fFlood hHazard aArea;
- I. Ensure that those who occupy fFlood hHazard aAreas assume responsibility for their actions; and
- J. Qualify Edgewood for participation in the National Flood Insurance Program, thereby giving the citizens of Edgewood the opportunity to purchase flood insurance with particular emphasis to those in fFlood hHazard aAreas. (~~Ord. 02-200 § 2).~~

14.70.02015 Flood Insurance Study Adoption

The areas of special flood hazard identified by the Federal Insurance Administration in a scientific and engineering report entitled "The Flood Insurance Study for Pierce County, Washington and Incorporated Areas" dated March 7, 2017, with accompanying FIRMs and any map amendments or corrections are hereby adopted by reference and declared to be a part of this title. The Flood Insurance Study and FIRMs are on file at Edgewood City Hall, 2224 104th Avenue East, Edgewood, Washington, 98371. The cityCity may add or delete land from areas of special flood hazard or revise bBase fFlood elevations, utilizing best-available information for flood hazard identification in accordance with federal regulations.

Chapter 14.70 FLOOD HAZARD AREAS**14.80.030 Definitions.**

A. Refer to Chapter 14.20 for definitions of any word or phrase not otherwise contained herein. ~~T~~For this Chapter (EMC 04.80) shall rely first on the definitions listed below shall apply:

1. *Appeal* – a request for a review of the interpretation of any provision of this chapter, per EMC 14.10.110, or request for a Flood Hazard Area Variance per EMC 14.80.070.
2. *Area of Shallow Flooding* – areas designated as AO or AH zones on the FIRM(s). AO zones are characterized as sheet flows, having base flood depths that range from one to three feet above the natural ground, where a clearly defined channel does not exist, the path of flooding is unpredictable and indeterminate, and velocity flow may be evident. AH zones indicate similar depth ponding, shown with standard base flood elevations on the FIRM(s).
3. *Area of Special Flood Hazard* – land in the floodplain within a community subject to a one percent or greater chance of flooding in any given year. Designation on FIRM(s) always includes the letter A or V.
4. *Basement* – any area of the building having its floor sub-grade (below ground level) on all sides, for the purposes of this title.
5. *Breakaway Wall* – a wall that is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces, without causing damage to the elevated portion of the building or supporting foundation system.
6. *Critical Facilities* – See EMC 14.20 B.22. For floodplain management purposes, Essential public facilities as defined under EMC 18.20.080 and 18.100.050 are considered *Critical Facilities*.
7. *Development* – any human-induced change to improved or unimproved real estate, including but not limited to: the construction of buildings or other structures, placement of a manufactured home/mobile home, mining, dredging, clearing, filling, grading, paving, excavation, drilling operations, storage of equipment or materials located within an area of special flood hazard, or activities otherwise governed by EMC Title 16, Subdivisions.
8. *Elevated Building* – a non-basement building that has its lowest elevated floor raised above ground level by foundation walls, shear walls, posts, piers, pilings, or columns.
9. *Existing Manufactured Home Park or Subdivision* – a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed before the effective date of the adopted floodplain management regulations.
10. *Expansion to an Existing Manufactured Home Park or Subdivision* – the preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).
11. *Flood or Flooding* – a general and temporary condition of partial or complete inundation of normally dry land areas from:
 - a. The overflow of inland or tidal waters; or
 - b. The unusual and rapid accumulation of runoff of surface waters from any source.
12. *Flood Insurance Study (FIS)* – the official report provided by the Federal Insurance Administration (FIA) that includes flood profiles, FIRM(s), and the water surface elevation of the Base Flood.
13. *Increased Cost of Compliance (ICC)* – a flood insurance claim payment up to \$30,000 directly to a property owner for the cost to comply with floodplain management regulations after a direct physical loss

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caused by a flood. Eligibility for an ICC claim can be through a single instance of “substantial damage” or as a result of a “cumulative substantial damage.” (More information can be found in FEMA ICC Manual 301.)

14. *Manufactured Home or Mobile Home* – a structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. For floodplain management purposes, the term “manufactured home/mobile home” also includes park trailers, travel trailers, and other similar recreational vehicles placed on a site for greater than 180 consecutive days. For insurance purposes, the term “manufactured home/mobile home” does not include park trailers, travel trailers, recreational vehicles, or other similar vehicles.
15. *Manufactured Home Park or Subdivision* – a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.
16. *New Construction* – structures for which the Start of Construction commenced on or after the following:
 - a. For the purposes of determining flood insurance rates, the effective date of an initial FIRM (i.e., August 19, 1987, or specifically for Panel 350 August 4, 1988), and includes any subsequent improvements to such structures.
 - b. For floodplain management purposes, March 7, 2017 (the effective date of this floodplain management ordinance), including any subsequent improvements to such structures.
17. *New Manufactured Home Park or Subdivision* – a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after March 7, 2017 (the effective date of this floodplain management regulation).
18. *Recreational Vehicle (RV)* – a vehicle built on a single chassis, 400 square feet or less when measured at the largest horizontal projection, designed to be self-propelled or permanently towable by a light duty truck, and designed primarily not for use as a permanent dwelling but as a temporary living quarters for recreational, camping, travel, or seasonal use.
19. *Start of Construction* – includes Substantial Improvement, and means the date the building permit was issued, provided the actual Start of Construction, repair, reconstruction, placement or other improvement was within 180 days of the permit date. The “actual start” means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a Substantial Improvement, the “actual Start of Construction” means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.
20. *Structure* – a walled and roofed building, including a gas or liquid storage tank that is principally above ground.
21. *Substantial Improvement* – any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds fifty (50) percent of the market value of the structure either:
 - a. before the improvement or repair is started; or
 - b. if the structure has been damaged and is being restored, before the damage occurred. For the purposes of this definition “Substantial Improvement” is considered to occur when the first

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alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure.

The term "Substantial Improvement" does not, however, include either:

- a. Any project for improvement of a structure to correct pre-cited existing Violations of state or local health, sanitary, or safety code specifications which have been previously identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions;
or
- b. Any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places; provided, that the alteration will not preclude the structure's continued designation as a historic structure.

22. *Variance* – a grant of relief from the requirements of this chapter that permits construction in a manner that would otherwise be prohibited, per EMC 14.80.070.

23. *Violation* – See 14.20 B.88. With regard to floodplain management, projects without an Elevation Certificate, other certifications, or other evidence of compliance required in EMC Chapter 14.80 are presumed to be in Violation until such time as said documentation is provided.

24. *Water Dependent* – a structure for commerce or industry that cannot exist in any other location and is dependent on the water by reason of the intrinsic nature of its operations.

14.780.040 0240 Flood Hazard Areas.

Edgewood regulates the following Flood Hazard Areas:

A. Potential Flood Hazard Areas.

1. Potential Flood Hazard Areas, as depicted on the Critical Areas Atlas – Flood Hazard Area Map, include:

a. Detailed Study Areas.

i. FEMA Flood Insurance Rate Map (FIRM) and Floodway Map AE and AH zones.

ii. Areas within 300 feet horizontal distance from the Base Flood elevation established for the mapped AE and AH zones.

iii. Areas within five feet of vertical height from the Base Flood elevation established for the mapped AE and AH zones.

b. Unstudied Areas, FEMA Flood Insurance Rate Map (FIRM)-A zones and shaded X zones, and areas within 300 feet horizontal distance from said mapped areas.

c. Natural Waters ~~/or~~ Watercourse. Areas within five feet of vertical height above the ordinary high water mark of an identified natural watercourse.

d. Groundwater Flooding Areas. Areas within 300 feet horizontal distance from a mapped groundwater flooding area.

e. Potholes. Areas not identified as a mapped Flood Hazard Area as described above, but within 10 feet of vertical relief from the bottom of an identified pothole or within two feet of vertical relief of a potential surface water spillway or other type of outlet. Potholes may be identified by City topographic mapping, field survey, or site inspections.

f. Channel Migration Zones (CMZs). Channel migration zones shall apply only to those watercourses specifically identified by the City or listed in subsection (B)(4) of this section. In those areas where detailed CMZ studies have been completed and accepted by the department, additional horizontal and vertical review threshold criteria (i.e., 300 feet horizontal and five feet vertical) shall not apply.

~~Chapter 14.70 FLOOD HAZARD AREAS~~

2. The Critical Areas Atlas – Flood Hazard Areas Map may not show all potential ~~flood hazard areas~~ that may be necessary for a specific site analysis. The ~~department~~ may make interpretations, where needed, as to the approximate location of the boundaries of potential ~~flood hazard areas~~. When there is a conflict between the elevations and the mapped potential ~~flood hazard area~~ boundaries, the elevations shall govern.

3. Where there is insufficient information shown on the potential ~~flood hazard area~~ maps, the ~~department~~ may require the applicant to verify that the site is out of the ~~flood hazard area~~ using the ~~flood hazard area~~ review procedures set forth in EMC ~~Chapter 14.780.030~~.

B. ~~FloodwayFloodway~~. A ~~floodwayFloodway~~ is an extremely hazardous area due to the depth ~~and~~/or velocity of floodwaters, which carry debris, potential projectiles, and have erosion potential. The following areas are regulated by the ~~cityCity~~ as ~~floodways Floodways~~:

1. Regulatory ~~FloodwayFloodway~~. Regulatory ~~floodwayFloodwayFloodway~~ designated by ~~flood hazard area~~ maps.

2. Deep ~~and~~/or Fast Flowing Water Areas. Areas of deep ~~and~~/or fast flowing water shall be regulated as a ~~floodwayFloodway~~. Based on the criteria set forth in EMC ~~Chapter 14.780.030(E)~~, the ~~departmentDepartment~~ shall make the determination after review and approval of applicant's analysis of whether the project site falls within the ~~floodwayFloodway~~ area based on deep ~~and~~/or fast flowing waters.

3. Potholes and Shaded X Zones. That portion of a pothole ~~and—zoneand zone~~ area that is three feet or greater in depth shall be regulated as a ~~floodwayFloodway~~.

4. Channel Migration Zones (CMZs).

a. ~~CMZs Channel-migration-zones~~ shall be regulated as a ~~floodwayFloodway~~.

b. ~~CMZsChannel-migration-zones~~ are equivalent to the ~~bBase flood~~ elevation limits, (i.e., 100-year floodplain limits).

C. Flood Fringe. All areas subject to inundation by the ~~bBase flood~~, but outside the limits of the ~~floodwayFloodway~~ as set forth in subsection (B) of this section. Those portions of the A, AE, AH, and shaded X zones not defined as ~~floodwayFloodway~~, and that portion of a pothole and FEMA shaded X zone area that is between zero feet (~~bBase flood~~ elevation) and three feet in depth shall be regulated as a ~~flood fringe~~.

D. Other Areas of Special Flood Hazard.

1. Groundwater Flooding Areas. Groundwater flooding areas are those areas identified by Edgewood and shown on flood hazard maps and are subject to flood inundation from subsurface waters that result from a fluctuation of the groundwater table. Groundwater flooding areas shall be regulated as a ~~floodwayFloodway~~ or ~~flood fringe~~ pothole.

2. Natural Waters ~~or~~/Watercourses. Natural waters ~~or~~/watercourses as identified on ~~cityCity~~ topographic, planimetric or orthophoto maps, WDNR ~~sStream~~ ~~eClassification~~ maps, USGS ~~qQuadrangle~~ maps, or other source maps that are not identified as a ~~flood hazard area~~ on the FEMA maps. That portion of the natural watercourse located between the ordinary high water mark and a topographic elevation five feet above the ordinary high water mark shall be regulated as a ~~floodwayFloodway~~ or ~~flood fringe~~. If the applicant chooses to accept the five-foot topographic elevation line above the ordinary high water mark as the ~~bBase flood~~ elevation (i.e., floodplain elevation limits), a flood study shall not be required for a natural water/watercourse.

3. Frequently Flooded Areas. See EMC ~~Chapter 14.780.0350(A)(9)~~ as the areas defined by this section. (~~Ord. 17-492 § 2 (Exh. A); Ord. 02-200 § 2~~).

~~14.780.050 350~~ Flood ~~hazard area~~ review procedures.

A. General Requirements.

~~Chapter 14.70 FLOOD HAZARD AREAS~~

1. The ~~e~~City's Critical Areas ~~Map~~~~Atlas~~ – Flood Hazard Area Map provides an indication of where potential ~~f~~Flood ~~h~~Hazard ~~a~~Areas are located within the city. The actual presence or location of a ~~f~~Flood ~~h~~Hazard ~~a~~Area shall be determined using the procedures and criteria contained in this chapter.
2. The ~~d~~Department will complete a review of the ~~f~~Flood ~~h~~Hazard ~~a~~Area maps, and other source documents, for any development proposal to determine whether the proposed project area for a regulated activity falls within a potential ~~f~~Flood ~~h~~Hazard ~~a~~Area. When there is a conflict between the elevations and the mapped 100- or 500-year ~~f~~Floodplain or ~~f~~Floodway boundaries, the elevations shall govern. In the instance where ~~b~~Base ~~f~~Flood elevation data has not been provided within a mapped A zone, the ~~d~~Department shall obtain, review, and reasonably utilize any ~~b~~Base ~~f~~Flood elevation and ~~f~~Floodway data available from a federal, state, or other source to complete their review.
3. When the ~~d~~Department's maps or sources indicate that the proposed project area for a regulated activity is or may be located within a potential ~~f~~Flood ~~h~~Hazard ~~a~~Area, (except for coastal flood hazard areas), the ~~d~~Department shall require a flood boundary verification survey as outlined in subsection (C) of this section, and may require a flood study as outlined in subsection (D) of this section, a deep ~~a~~nd/or fast flowing water analysis as outlined in subsection (E) of this section, ~~a~~nd/or a zero-rise analysis as outlined in subsection (F) of this section.
4. Any proposed development located within a ~~f~~Flood ~~h~~Hazard ~~a~~Area shall comply with the ~~f~~Flood ~~h~~Hazard ~~a~~Area ~~s~~Standards set forth in EMC ~~Chapter 14.780-040.060~~.
5. Prior to approval of any proposed ~~f~~Flood ~~h~~Hazard ~~a~~Area development, all necessary permits from those governmental agencies from which prior approval is required by federal or state law, including but not limited to Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334, must be provided to the ~~e~~City by the applicant.
6. A FEMA letter of map amendment (LOMA) or letter of map revision (LOMR) shall not be submitted to FEMA until review and approval has been granted by the ~~d~~Department. The ~~e~~City shall not recognize any LOMA or LOMR as an amendment to the ~~d~~Department's flood hazard maps unless the ~~d~~Department has granted prior approval.
7. Unless otherwise stated in this chapter, the ~~e~~Critical ~~a~~Area protective measure provisions contained in EMC ~~Section 14.10.070080~~ shall apply.
8. The Federal Emergency Management Agency (FEMA) administers the nation's floodplain management program. FEMA has identified some of the flood prone areas in the city; however, it is generally recognized that FEMA's Flood Insurance Rate Maps (FIRMs) may not accurately reflect the degree or frequency of flooding within all areas of the city. Therefore, information available through FEMA may not meet ~~b~~Best ~~a~~Available ~~s~~Science criteria and cannot be used exclusively to address ~~f~~requently ~~f~~looded ~~a~~Areas.
9. The ~~e~~City has determined that the following documents and sources are the most current and accurate information concerning ~~f~~requently ~~f~~looded ~~a~~Areas within the city, and therefore represent ~~b~~Best ~~a~~Available ~~s~~Science:
 - a. The ~~e~~City's Surface Water Management Plan, 1997, or as amended thereafter.
 - b. Aerial photographs of the city, especially those taken in wintertime 1996 and 1997.
 - c. The ~~e~~City's two-foot elevation contour mapping performed by Nies Mapping Group, Inc., 1999, or as subsequently updated.
 - d. Relevant and verifiable information from the ~~e~~City's Capacity Analysis Technical Review ~~AdHoc~~~~Ad hoc~~ Committee draft report, 2000.
 - e. Relevant and verifiable government and citizen photographs, notes, observations, etc., regarding historic ponding/flooding levels, including but not limited to the City of Edgewood Potholes Water Level Monitoring 2006-2007 report prepared by Robinson Engineers, LLC.

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f. Relevant and verifiable information available through Pierce County.

g. Relevant and verifiable information available through FEMA.

10. Flooding conditions within the city generally fall into three distinct hydrologic settings: (a) upland areas within enclosed depressions, (b) streams that flow off the upland areas, and (c) valley lowlands. Accordingly, the ~~city~~City manages ~~the~~ frequently ~~the~~flooded ~~a~~Areas within these three zones, as described below:

a. Upland Areas Within Enclosed Depressions. From the above list use the historic ponding elevation, determined by subsection (A)(9) of this section, or the FEMA 100-year ~~b~~Base ~~the~~flood elevation, whichever is highest.

b. Streams Which Flow Off the Upland Areas. From the above list use the historic flood elevation, determined by subsection (A)(9) of this section, or the FEMA 100-year ~~b~~Base ~~the~~flood elevation, whichever is highest.

c. Valley Lowlands. From the above list use the historic flood elevation determined by subsection (A)(9) of this section, or the FEMA 100-year ~~b~~Base ~~the~~flood elevation, whichever is highest.

11. The ~~city~~City will provide local flood information to FEMA, and request FEMA's assistance in accurately mapping and evaluating ~~the~~ frequently ~~the~~flooded ~~a~~Areas.

12. Warning and Disclaimer of Liability. The degree of flood protection required by this chapter is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by manmade or natural causes. This chapter does not imply that land outside ~~the~~ frequently ~~the~~flooded ~~a~~Areas or uses permitted within such areas will be free from flooding or flood damages. This chapter shall not create liability on the part of ~~city~~City, any officer or employee thereof, or the Federal Insurance Administration, for any flood damages that result from reliance on this chapter or any administrative decision lawfully made hereunder.

B. Channel Migration Zone Study.

1. In areas where Edgewood has not conducted a detailed channel migration zone study, an applicant may submit an independent channel migration zone study to demonstrate that the channel migration zone limits for those watercourses listed in EMC ~~Chapter 14.780-020(B)(4)~~ are located inside the 100-year floodplain limits.

2. The channel migration zone study shall be prepared, signed, and dated by a professional ~~e~~Engineer or ~~professional-g~~ Engineering Geologist with at least five years of experience in fluvial geomorphology, river dynamics, or geotechnical engineering.

3. The channel migration zone study shall, at a minimum, contain the information set forth in EMC ~~Section 14.780.060-050~~, Appendix B.

4. The ~~department~~Department shall review the channel migration zone study and either accept the new channel migration zone limits or reject the study and require the use of the 100-year floodplain limits. Once the ~~department~~Department has reviewed and approved the channel migration zone study, the applicant shall be required to provide a flood boundary verification survey, as outlined in subsection (C) of this section, utilizing the newly established channel migration zone limits as the ~~floodway~~Floodway limits.

C. Flood Boundary Verification Survey.

1. A flood boundary verification survey that delineates the horizontal and vertical limits of the ~~b~~Base ~~the~~flood elevation shall be submitted to the ~~department~~Department when the ~~department~~Department's maps or sources indicate that the proposed project area for a regulated activity is located within a potential ~~the~~flood ~~h~~azard ~~a~~Area.

a. Where a ~~b~~Base ~~the~~flood elevation has not been determined, a flood study shall be required pursuant to subsection (D) of this section.

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- b. A ~~b~~Base ~~f~~Flood elevation that has been established through a detailed flood study accepted by the ~~department~~Department may be used in lieu of conducting a flood study.
- c. The ~~b~~Base ~~f~~Flood elevation for a natural watercourse as set forth in EMC ~~Chapter 14.780.020(D)(2)~~ shall be established at the five-foot topographic elevation line above the ordinary high water mark.

2. The requirement to submit a flood boundary verification survey may be waived at the ~~department~~Department's discretion, when the ~~department~~Department can determine, using contour elevations, ~~b~~Base ~~f~~Flood data, orthophotos, and parcel data, that the extent of the regulated activity is clearly above the ~~b~~Base ~~f~~Flood elevation.
3. The flood boundary verification survey shall be prepared, signed, and dated by a registered land surveyor.
4. The ~~department~~Department shall review the flood boundary verification survey to determine if the proposed development is located within a ~~f~~Flood ~~h~~Hazard ~~a~~Area.
5. If the proposed development lies within the ~~f~~Flood ~~h~~Hazard ~~a~~Area, the limits of the ~~floodway~~Floodway, as well as the ~~b~~Base ~~f~~Flood elevation, shall be shown on the flood boundary verification survey.

D. Flood Study.

1. A flood study shall be conducted when the ~~department~~Department's maps or sources indicate that the proposed project area for a regulated activity is, or may be located within, a potential ~~f~~Flood ~~h~~Hazard ~~a~~Area where ~~b~~Base ~~f~~Flood elevation data is not available through the ~~f~~Flood ~~i~~Insurance ~~s~~Study or other authoritative sources, or when an established ~~b~~Base ~~f~~Flood elevation is contested. A full engineering analysis to determine the ~~b~~Base ~~f~~Flood elevation shall be required by the ~~department~~Department. Base ~~f~~Flood elevations shall be determined using the detailed methods established in EMC ~~Section 14.780.0560~~, Appendix A. The ~~department~~Department may approve alternative methods.
2. The flood study shall be prepared, signed, and dated by a ~~p~~Professional ~~e~~Engineer.
3. Once the ~~department~~Department has reviewed and approved the flood study, the applicant shall be required to provide a flood boundary verification survey, utilizing the newly established ~~b~~Base ~~f~~Flood elevation, as outlined in subsection (C) of this section.
4. Flood studies shall not be required for coastal ~~f~~Flood ~~h~~Hazard ~~a~~Areas.

E. Deep and/or Fast Flowing Water Analysis.

1. When the ~~d~~Department determines that a proposed project area for a regulated activity is located within a ~~f~~Flood ~~h~~Hazard ~~a~~Area, a deep and/or fast flowing water analysis based on EMC ~~Section 14.780.0560~~, Appendix A, shall be required to determine the ~~floodway~~Floodway limits.
2. The ~~floodway~~Floodway -limits and ~~f~~Flood ~~f~~Fringe limits identified in the deep and/or fast flowing water analysis shall be depicted on the flood boundary verification survey, as outlined in subsection (C) of this section.
3. The deep and/or fast flowing water analysis shall be prepared, signed, and dated by a professional ~~e~~Engineer.
4. Deep and/or fast flowing water analysis shall not be required for coastal ~~f~~Flood ~~h~~Hazard ~~a~~Areas.

F. Zero-Rise Analysis.

1. When the ~~department~~Department determines that a proposed project area for a regulated activity is located within a ~~f~~Flood ~~h~~Hazard ~~a~~Area, a zero-rise analysis shall be required to determine that no increase in ~~b~~Base ~~f~~Flood elevation, displacement of flood volume, or flow conveyance reduction will occur as a result of the development.

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2. The zero-rise analysis shall be conducted utilizing ~~HEC-RAS~~ (Hydrologic Engineering Center – River Analysis System (~~HEC-RAS~~) modeling methodology (for stream ~~and~~ /channel ~~Floodway~~~~Floodways~~); the Western Washington Hydrology Model, (i.e., WWHM, for pothole ~~or~~ closed depression ~~floodways~~~~Floodways~~); or ~~by another~~ alternative methodology~~ies~~ approved by the ~~eCity~~, (see EMC ~~Section 14.780.10560~~, Appendix A). ~~HEC-RAS can be found at the following website:-~~
~~http://www.hec.usace.army.mil/software/hecras/~~. ~~WWHM can be found here:-~~
~~http://www.ecy.wa.gov/programs/wq/stormwater/wwhmtraining/index.html~~. The analysis shall show that no rise ~~greater than~~ (0.01 foot ~~or less~~) has occurred as a result of the proposed development. The ~~scope of the~~ proposed development may need to be reduced or specially ~~engineering may be requireded, e.g.,~~ ~~(such as~~ utilizing piers or pilings) to achieve zero-rise.

3. The zero-rise analysis shall be prepared, signed, and dated by a ~~p~~Professional ~~e~~Engineer.

4. The zero-rise analysis shall be documented on the zero-rise analysis form, as set forth in EMC ~~Section 14.780.10560~~, Appendix A, and shall be attached to the ~~f~~Flood ~~h~~Hazard ~~a~~Area permit.

5. Zero-rise analysis shall not be required for coastal ~~f~~Flood ~~h~~Hazard ~~a~~Areas.

6. When structures are elevated by pier or pilings and no fill is placed in the ~~f~~Flood ~~h~~Hazard ~~a~~Area, the requirement to submit a zero rise analysis may be waived at the ~~department~~Department's discretion. (~~Ord. 17-492 § 2 (Exh. A); Ord. 02-200 § 2~~).

14.780.060.460 Flood ~~h~~Hazard ~~a~~Area ~~s~~Standards.**A. General.****1. All subdivision proposals shall:**

a. be consistent with the need to minimize flood damage;

b. have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize flood damage;

c. have adequate drainage provided to reduce exposure to flood damage; and,

2. Where base flood elevation data has not been provided or is not available from another authoritative source, it shall be generated for subdivision proposals and other proposed developments which contain at least 50 lots or five acres (whichever is less).

3. New ~~e~~Construction done by or for the ~~city~~City, such as bridges, roads, flood control works, revetments, retaining walls, drainage structures, sewer or water lines, parks, or other structures necessary to promote the public's health, safety, and welfare shall be allowed in a ~~f~~Flood ~~h~~Hazard ~~a~~Area when:

a. The project is prepared, dated, and stamped by a registered ~~p~~Professional ~~e~~Engineer in the state of Washington and is designed so the project does not result in any increase in flood levels during the occurrence of the ~~b~~Base ~~f~~Flood discharge (zero-rise) and shall not obstruct the ~~floodway~~~~Floodway~~ or cause an adverse impact to critical fish or wildlife habitat or adjacent, cross-channel, or upstream or downstream properties; and

b. The improvements utilize appropriate flood hazard protection standards.

24. Elevation Certificate. A Federal Emergency Management Agency (FEMA) ~~e~~Elevation ~~e~~Certificate shall be required for ~~a~~New ~~e~~Construction, ~~any~~ ~~a~~Additions affixed to the side of a structure, and ~~s~~Substantial ~~i~~Improvements located within ~~f~~Flood ~~h~~Hazard ~~a~~Areas. The most current version of the FEMA ~~e~~Elevation ~~e~~Certificate must be completed and certified by a professional land surveyor, currently licensed in the state of Washington, kept on file by the ~~city~~City for public inspection, recording the actual (as-built) elevation (in relation to mean sea level) of:

Commented [JM22]: Added from 15.10.150 D (missed in last year's flood code update); should there be a cross-reference to Title 16 somewhere around here?

~~Chapter 14.70 FLOOD HAZARD AREAS~~

- a. The ~~Lowest floor,~~ (including basement,) of all new or substantially improved structures, whether or not the structure contains a basement;
- b. For flood proofed nonresidential structures, where the structure was flood proofed (including flood proofing certifications).

B. ~~Floodway~~Floodways. Any development, ~~encroachments, filling, clearing and grading, new~~ ~~eConstruction, and or s~~Substantial ~~i~~Improvements, ~~including structures that do not require a building permit,~~ shall be prohibited within the ~~floodway~~Floodway; ~~(including structures that do not require a building permit),~~ except as allowed in the following standards:

1. Agricultural ~~a~~Activities that do not require the installation of structures and that do not have any associated fill.
2. Park and recreational uses and facilities that do not require the installation of structures and that do not have any associated fill.
3. Individual recreational vehicles, not located in an RV park, that are licensed and ready for highway use, on wheels or jacking system, and are not permanently attached to the site ~~or~~ (i.e., attached only by quick disconnect type utilities and security devices, with no permanently attached additions).
4. Habitat ~~e~~Enhancement ~~or~~ stream ~~r~~Restoration activities are permitted subject to the provisions outlined in subsection (D) of this section.
5. Rehabilitation, reconstruction, or an upper story ~~a~~Addition to an existing structure that does not exceed the limits for a ~~s~~Substantial ~~i~~Improvement.
6. Private bridges may be allowed to cross the ~~floodway~~Floodway; provided, that the structure meets the requirements contained in EMC ~~Section 14.780.03450~~ and the following:
 - a. The lowest structural member of a private bridge proposed to cross a channel migration zone shall be a minimum of six (6) feet above the ~~b~~Base ~~f~~Flood elevation.
 - b. The lowest structural member of a private bridge proposed to cross the ~~floodway~~Floodway portion of any other watercourse shall be a minimum of one foot above the ~~b~~Base ~~f~~Flood elevation.

C. Flood Fringe Areas. All activities allowed in subsection (B) of this section shall be permitted in a ~~f~~Flood ~~f~~Fringe area. Any other proposed development, ~~encroachments, filling, clearing and or grading, new~~ ~~eConstruction, and or s~~Substantial ~~i~~Improvements are prohibited in a ~~f~~Flood ~~f~~Fringe area, except as permitted under the following standards:

1. Structures that do not require a building permit and that do not have any associated fill are allowed, subject to ~~f~~Flood ~~h~~Hazard ~~a~~Area review and permitting.
2. All other ~~r~~Regulated ~~a~~Activities shall only be allowed when the proposed development is located on an existing lot of record that was created prior to the effective date of the ordinance codified in this chapter. Applicants shall demonstrate there are no other feasible alternatives that would allow the proposed development to occur completely outside the ~~f~~Flood ~~h~~Hazard ~~a~~Area. At a minimum, the following shall be demonstrated:
 - a. The development cannot be located outside the ~~f~~Flood ~~h~~Hazard ~~a~~Area due to topographic constraints of the parcel or ~~its~~ size ~~and/or~~ location ~~of the parcel~~ in relation to the limits of the ~~f~~Flood ~~h~~Hazard ~~a~~Area and a building setback variance has been reviewed, analyzed, and rejected as a feasible alternative to encroachment into the ~~f~~Flood ~~h~~Hazard ~~a~~Area; and
 - b. The proposed development shall not cause an adverse impact to adjacent, cross-channel, or upstream or downstream properties.

3. Roads, Bridges, Trails, and Parking Lots.

a. Roads, bridges, driveways, trails, emergency vehicle access, and access routes and easements, where allowed, shall be constructed and armored based on the standards in subsection (C)(4) of this section and elevated a minimum of one foot above the ~~b~~Base ~~f~~lood elevation.

b. Parking lots shall be elevated to a minimum of one-half foot below the ~~b~~Base ~~f~~lood elevation.

4. ~~Clearing and Grading and Filling~~. When development is permitted under this subsection, it shall be designed to a zero-rise standard ~~as set forth in EMC 14.70.030(F) and 14.70.050, Appendix A~~. Any ~~filling, g. Grading, or clearing~~ associated with the permitted development shall not increase flood hazards, water velocities, or flood elevations. In addition to meeting the requirements for zero-rise, all permitted development must also meet the following requirements:

a. Compensatory Storage. New excavated storage volume shall be equivalent to the flood storage capacity eliminated by ~~filling or g. Grading~~ within the ~~f~~lood ~~f~~ringe. Equivalent shall mean that the storage removed shall be replaced by equal live storage volume between corresponding one-foot contour intervals that are hydraulically connected to the floodplain through their entire depth.

b. Flow Conveyance. New excavated conveyance areas shall be equivalent to existing conveyance within the ~~f~~lood ~~f~~ringe. Equivalent shall mean a mechanism for transporting water from one point to another using an open channel system.

c. Erosion Protection. Development shall be protected from flow velocities greater than two feet per second through the use of bio-engineering methods or, when bioengineering methods have been deemed insufficient to protect development, then ~~h~~Hard ~~a~~Armoring may be utilized. All erosion protection shall extend one to three feet, depending on development requirements, above the ~~b~~Base ~~f~~lood elevation and shall be covered with topsoil and planted with ~~a~~Native ~~v~~Vegetation.

5. Critical Facilities.

a. New ~~e~~Construction, ~~a~~Additions affixed to ~~the side of~~ an existing structure, and ~~s~~Substantial ~~i~~mprovement of hazardous facilities, and ~~s~~Special ~~e~~Occupancy ~~s~~Structures are prohibited.

b. New ~~e~~Construction of an ~~essential-Critical f~~facility, reconstruction of an existing ~~Critical essential-f~~facility, or ~~any a~~Additions to an existing ~~Critical essential-f~~facility that exceed the threshold for ~~s~~Substantial ~~i~~mprovement shall be permitted when no feasible alternative site is available outside the ~~f~~lood ~~h~~azard ~~a~~Area. Such ~~r~~Regulated ~~a~~Activities are subject to the following:

i. ~~Essential-Critical f~~facilities with a ~~e~~Crawl ~~s~~Space elevated by fill shall have the ~~l~~lowest ~~f~~loor and any utilities and ductwork elevated a minimum of three feet above ~~b~~Base ~~f~~lood elevation, or to the height of the 500-year flood, whichever is higher.

ii. ~~Essential-Critical f~~facilities elevated by piers or pilings shall have the ~~f~~inished ~~f~~loor and any utilities and ductwork elevated a minimum of three feet above the ~~b~~Base ~~f~~lood elevation (or to the height of the 500-year flood, whichever is higher) and must be designed by a professional structural ~~e~~Engineer.

iii. Access to and from the ~~e~~Critical ~~f~~facility shall be protected to the height utilized under ~~s~~Subsections (C)(5)(b)(i) ~~and/or~~ (ii) of this ~~s~~Section. Access routes shall be elevated to or above the same elevation to the maximum extent possible.

iv. ~~Critical Essential f~~facilities shall be armored based on the standards in subsection (C)(4) of this section.

v. Flood proofing and sealing measures must be taken to ensure that toxic or explosive substances will not be displaced or released into floodwaters.

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6. Structures-~~Single-family, two-family, multifamily, mobile/manufactured homes, commercial, industrial, etc.,~~ except for ~~eCritical fF~~ facilities as set forth in subsection (C)(5) of this section, shall be allowed subject to the following standards:

- a. New ~~eC~~onstruction, ~~aA~~dditions affixed to ~~the side of~~ an existing structure, and ~~sS~~ubstantial ~~iI~~mprovement of any structure with a ~~eC~~rawl ~~sS~~pace shall have the ~~lL~~owest ~~fF~~loor elevated a minimum of two feet above ~~bB~~ase ~~fF~~lood elevation.
- b. New ~~eC~~onstruction, ~~aA~~dditions affixed to ~~the side of~~ an existing structure, and ~~sS~~ubstantial ~~iI~~mprovement of any structure elevated by piers or pilings shall have the bottom of the lowest horizontal structural member elevated a minimum of two feet above the ~~bB~~ase ~~fF~~lood elevation and must be designed by a professional structural ~~eE~~ngineer. Electrical, heating, ventilation, plumbing, air-conditioning equipment, and other service facilities and associated ductwork shall be elevated a minimum of two feet above ~~bB~~ase ~~fF~~lood elevation; however, the ~~dD~~epartment may approve a lesser minimum distance above ~~bB~~ase ~~fF~~lood elevation; provided, that the systems are designed to prevent floodwater from entering or accumulating within the components. Areas below the lowest horizontal structural member shall not be enclosed and shall remain free of obstructions.
- c. Mobile ~~or/~~ manufactured homes shall be anchored to prevent flotation, collapse, or lateral movement, and shall be installed using methods and practices to minimize flood damage. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This is in addition to applicable state and local anchoring requirements for resisting wind forces.

7. Agricultural Accessory Structures. The ~~lL~~owest ~~fF~~loor in an agricultural accessory structure shall be located at the ~~bB~~ase ~~fF~~lood elevation or higher; provided, that the structure be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a professional ~~eE~~ngineer in the state of Washington or must meet or exceed the following minimum criteria:

- a. A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided;
- b. The bottom of all openings shall be no higher than one foot above grade; and
- c. Openings may be equipped with screens, louvers, or other coverings ~~s~~ or devices; provided, that they permit the automatic entry and exit of floodwaters.

8. Construction Standards.

- a. Construction of a basement is prohibited.
- b. Crawl ~~sS~~paces shall be backfilled with clean ~~eE~~arth ~~mM~~aterial and shall meet International Building Code requirements. Finished grade within the crawlspace shall be at least two feet above the ~~bB~~ase ~~fF~~lood elevation.
- c. Flood proofing in lieu of elevating the structure is prohibited.
- d. All single-family, two-family, multifamily, mobile ~~or/~~ manufactured homes, commercial, and industrial structures shall be placed on standard concrete stemwall ~~or/~~ footing foundations or piles, piers, or column foundations and engineered pursuant to International Building Code requirements.

9. Sewage Disposal and Potable Water Installation.

- a. New and replacement public water sources, ~~(i.e., wells and water supply lines)~~ and public sanitary sewage conveyance systems are allowed. These systems shall be designed to withstand scour resulting from flow velocity, minimize or eliminate infiltration of floodwaters into the systems, and minimize or eliminate discharge from the systems into floodwaters

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b. All replacement wells and replacement on-site sewage system (OSS) shall be designed to minimize or eliminate impairment to them or contamination from/to them during flooding, (i.e., infiltration of floodwaters into or discharge out of the systems). They shall not be located in pothole or no-outlet floodplains.

c. All new individual wells and new on-site sewage system (OSS) shall be prohibited. Conveyance systems from a structure to a well or OSS located outside of the flood hazard area shall be allowed provided these systems are designed to meet the standards in subsection (C)(4) of this section.

14.80.070 Variances to Flood Hazard Areas.

A. General. Variances are reviewed pursuant to the process and criteria outlined in EMC 14.10.100, Variances to Critical Areas.

B. Additional Criteria for Flood Hazard Area Variances. In addition to the variance criteria referenced above in subsection (A) of this section, in order for the decision maker to approve a Flood Hazard Area variance, there must be written findings that the applicant has demonstrated the proposal satisfies all of the following:

1. Generally, the only condition under which a variance from the elevation standard may be issued is for New Construction and Substantial Improvements to be erected on a small or irregularly shaped lot contiguous to and surrounded by lots with existing structures constructed below the Base Flood level. As the lot size increases the technical justification required for issuing the variance increases.
2. Variances shall not be issued within a designated Floodway if any increase in flood levels during the Base Flood discharge would result.
3. Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
4. Variances shall only be issued upon:
 - a. A showing of good and sufficient cause;
 - b. A determination that failure to grant the variance would result in exceptional hardship to the applicant and that the hardship was not created by the applicant;
 - c. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.
5. Variances as interpreted in the National Flood Insurance Program are based on the general zoning law principle that they pertain to a physical piece of property; they are not personal in nature and do not pertain to the structure, its inhabitants, economic or financial circumstances. They primarily address small lots in densely populated residential neighborhoods. As such, variances from flood elevations should be quite rare.
6. Variances may be issued for nonresidential buildings in very limited circumstances to allow a lesser degree of flood proofing than watertight or dry-flood proofing, where it can be determined that such action will have low damage potential, complies with all other variance criteria except B.1, above, and otherwise complies with EMC 14.80.060, Flood Hazard Area Standards.
7. Any applicant to whom a variance is granted shall be given written notice that the permitted structure will be built with its Lowest Floor below the Base Flood elevation and that the cost of flood insurance will be commensurate with the increased risk.

14.780.080 1450 Appendices.

A. Floodplain/~~Floodway~~Floodway Analysis.

B. Channel Migration Zone Study.

APPENDIX A**FLOODPLAIN/FLOODWAY ANALYSIS**

This Appendix describes the flood hazard analyses and studies as required by EMC Chapter 14.780 —~~EMC~~, Flood Hazard Areas. Flood hazard studies establish the ~~b~~Base ~~f~~Flood elevation and delineate floodplain and/or ~~floodway~~Floodway(s) when a proposed project contains or is adjacent to a river, stream, lake, or closed depression.

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Flood hazard studies must conform to FEMA regulations described in Part 65 of 44 Code of Federal Regulations (CFR). In addition, the following information must be provided and procedures performed for flood hazard studies used under ~~EMC~~ Chapter 14.7800-~~EMC~~ to examine development proposals or improvements within a floodplain.

Article I. ~~Floodway~~Floodway Determination

The ~~city~~City recognizes two distinct ~~floodway~~Floodways. The FEMA ~~floodway~~Floodway describes the limit to which encroachment into the natural conveyance channel can cause one foot or less rise in water surface elevation. The deep and/or fast flowing (DFF) water ~~floodway~~Floodways are hazardous areas and conditions of the floodplain for both people and habitable structures. Life safety and protection to improved properties are compromised if encroached upon. Encroachment cannot occur within these areas.

A. FEMA ~~Floodway~~Floodways.

1. FEMA ~~floodway~~Floodways are determined through the procedures outlined in the FEMA publication Guidelines and Specifications for Study Contractors using the one-foot maximum allowable rise criteria.
2. Transitions shall take into account obstructions to flow such as road approach grades, bridges, piers, culverts, or other restrictions. General guidelines for transitions may be found in HEC-RAS, Water Surface Profiles – User's Manual, Appendix IV, Application of HEC-RAS Bridge Routines, published by the Hydrologic Engineering Center, Davis, California.

B. Deep and/or Fast Flowing (DFF) ~~Floodway~~Floodways.

1. DFF ~~floodway~~Floodways are generally assumed to include the entire 100-year floodplain until the ~~department~~Department approves a detailed ~~floodway~~Floodway analysis that defines areas of DFF within the entire floodplain area based on the criteria.
2. The hydraulic model must adequately be calibrated to known or recorded stage elevations of past flood events with computed recurrence frequency intervals for the 100-year flood recurrence interval. This is to ensure model accuracy.

Article II. Flood Study Content and Required Information

Three copies of the completed floodplain/~~floodway~~Floodway analysis study report and the modeling digital files shall be submitted. The report submittal must be stamped by a licensed professional civil ~~e~~Engineer and include the following information in addition to that required for the drainage plan of a proposed project:

A. Floodplain/~~Floodway~~Floodway Map.

1. A scaled survey base map stamped by a licensed professional land surveyor registered in the state of Washington. The map must accurately locate the proposed development with respect to the floodplain and ~~floodway~~Floodway, the channel of the subject stream, river, and/or pothole location, and the existing improvements within the subject study area. It must also supply all pertinent information such as the nature of the proposed project, legal description of the property on which the project would be located, fill quantity, limits and elevation, the building floor elevations, and use of compensatory storage.
2. The map must show elevation contours at a minimum of two-foot vertical intervals and shall comply with survey and map guidelines published in the FEMA publication Guidelines and Specifications for Study Contractors. The map must show the following:
 - a. Elevations and ground contours, spot elevations, and vertical datum NAVD 88 (North American Vertical Datum of 1988) (or most recent vertical datum accepted by the ~~department~~Department).
 - b. Elevations and dimensions of existing structures, fill, and compensatory storage areas.
 - c. Size, location, elevation and spatial arrangement of all proposed structures on the site.

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d. Location and elevations of roadways, drainage facilities, water supply lines, and sanitary sewer facilities.

e. Areas of DFF must clearly be shown and plotted on the map sheet depicting the bounded area of the ~~floodway~~Floodway on both sides of the study channel through the subject site. DFF ~~floodway~~Floodway studies must reflect all transitions as referenced above as well.

f. The base maps must also be accompanied by all field survey notes/computations, drawings, etc., for each cross-section with water surface elevation at the time the cross-section field survey was done.

B. Study Report.

1. Soil maps, groundcover maps, and photographs.

2. A narrative report containing the purpose of the study and description of the study area, data collection, methodology for both the hydrology and hydraulics, detailed discussion on the input parameters used, modeling results, and conclusions.

3. A floodplain/~~floodway~~Floodway analysis must include calculations and all computer analysis input and output information, supporting graphical illustrations, as well as the following additional information:

a. Scaled cross-sections showing the current ~~and~~ existing conditions of the river ~~or~~ stream channel, the floodplain adjoining each side of the channel, the computed ~~floodway~~Floodway, the cross-sectional area to be occupied by any proposed development and all historic high water information.

b. Profiles showing the bottom of the channel, the top of both left and right banks and computed ~~b~~Base ~~f~~Flood water surface elevations for the 10-, 25-, 50- and 100-year events.

c. Plans and specifications of any flood protection for structures, construction areas, ~~filling~~Clearing, dredging, channel improvements, storage of materials, water supply, and sanitary facilities within the floodplain.

d. Complete printout of input and output data of the model that was used for the analysis. Liberal use of comments and written discussion will assist considerably in understanding the model logic and minimize misinterpretations and/or questions.

e. A map, showing the graphical/plotted location and limits of the computed ~~floodway~~Floodway and/or floodplain.

f. Three copies of ready-to-run digital files of both the hydrologic and hydraulic model and its input and output files used in the study. Data shall be submitted on a disk in standard ASCII format, ready to use on an IBM-compatible personal computer and in the applicable software application, ~~(i.e.,~~ HEC-RAS, HSPF – Hydrological Simulation Program – FORTRAN, SBUH, ~~or similar application, etc.)~~.

g. A section on the flood flow including computer modeling ~~and/or~~ calculations ~~(see below for additional requirements on flood flow determinations)~~.

h. Aerial photographs of the site including pre-February 1996 and post-February 1996 photos of the site.

i. All field survey notes/computations, maps, and drawings for each cross-section with water surface elevation at the time of the cross-section field survey.

C. Computer Modeling Information. ~~Floodway~~Floodway/floodplain studies submitted to the ~~city~~City for review must include output summary tables and include the following (but not limited to) items:

1. Cross-section(s) identification number.

2. Range of flows being examined.

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3. Computed water surface elevation at each cross-section.
4. Energy grade line at each cross-section.
5. Graphical plots of the channel cross-sections with computed water surface elevations for all model runs including calibrated model runs.
6. All model input and output printouts.
7. Graphical plots of the model output data that show the points and segments along each cross-section where deep and/or fast flowing water occurs. This shall include cross-section plots of depth and velocity in one-unit increments. The plots shall also be accompanied with a table listing the station distance (right and left bank), flow rate, area, hydraulic depth, velocity, and whether each point is a ~~floodway~~Floodway.
8. A plan sheet clearly showing the graphical representation of the bounded area of the ~~floodway~~Floodway based on DFF criteria through the entire study site and reach. Note that identified islands or pockets within the middle of the bounded ~~floodway~~Floodway area are generally considered as part of the ~~floodway~~Floodway, unless otherwise approved by the ~~department~~Department.
9. Discussion on the starting water surface elevation for the hydraulic model.

Article III. Determining Flood Flows

The three techniques used to determine the flows used in a flood study depend on whether gauge data is available, whether a basin plan has been adopted, or a detailed flood study has been done and approved for use by the Department. The first technique is for basins with adopted basin plan areas. The second technique is used if a gauging station exists on the stream. The third technique is used on ungauged catchments or those with an insufficient length of record. In all cases, the ~~e~~Engineer shall be responsible for assuring that the hydrologic methods used are technically reasonable, conservative, conform to the FEMA publication, Guidelines and Specifications for Study Contractors, and are acceptable by FEMA and the ~~department~~Department.

A. Flood Flows from Adopted Basin Plan Information. Flood flows may be determined using information from the ~~city~~City's basin plan. The hydrologic model used in the basin plan shall be updated to include the latest changes in zoning or any additional information regarding the basin which has been acquired since the adoption of the basin plan.

B. Flood Flows from Stream Gauge Data. Determining flood flows from stream gauge data uses the Log-Pearson Type III distribution method as described in the Guidelines for Determining Flood Flow Frequency, Bulletin 17B of the Hydrology Committee, United States Water Resources Council (revised October 1981).

1. This technique may be used only if data from a gauging station in the basin is available for a period of at least 10 years.
2. If the difference in the drainage area on the stream at the study site and the drainage area to a gauging station on the stream at a different location in the same basin is less than or equal to 50 percent, the flow at the study site shall be determined by transferring the calculated flow at the gauge to the study site using a drainage area ratio raised to the 0.86 power, as in the following equation:

where

- Q_{ss} = estimated flow for the given return frequency on the stream at the study site.
- Q_G = flow for the given return frequency on the stream at the gauge site.
- A_{ss} = drainage area tributary to the stream at the study site.
- A_G = drainage area tributary to the stream at the gauge site.

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3. If the difference in the drainage area at the study site and the drainage area at a gauging station in the basin is more than 50 percent and a basin plan has not been prepared, a continuous model shall be used as described below to determine the flood flows at the study site.

4. In all cases where dams or reservoirs, floodplain development, or land use upstream may have altered the storage capacity or runoff characteristics of the basin so as to affect the validity of this technique, a continuous model shall be used to determine flood flows at the study site.

C. Flood Flows from a Calibrated Continuous Model. Flood flows may be determined by utilizing a continuous flow simulation model such as HSPF or other equivalent continuous flow simulation model, as approved by the [cityCity](#). Where flood elevation or stream gauging data are available, the model shall be calibrated to the known data. Otherwise, regional parameters may be used.

Article IV. Determining Flood Elevations, Profiles and [FloodwayFloodways](#) (Hydraulic Model)

A. Reconnaissance. The applicant's project [eEngineer](#) is responsible for the collection of all existing data with regard to flooding in the study area. This shall include a literature search of all published reports in the study area and adjacent communities and an information search to obtain all unpublished information on flooding in the immediate and adjacent areas from federal, state, and local units of government. This search shall include specific information on past flooding in the area, drainage structures such as bridges and culverts that affect flooding in the area, available topographic maps, available community maps, photographs of past flood events, and general flooding problems within the community. Documented discussions with nearby property owners should also be done to obtain a witness account of the flooding extent. A field reconnaissance shall be made by the applicant's project [eEngineer](#) to determine hydraulic conditions of the study area, including type and number of structures, locations of cross-sections, and other parameters including the roughness values necessary for the hydraulic analysis.

B. Base Data. Channel cross-sections used in the hydraulic analysis shall be current/existing at the time the study is performed and shall be obtained by field survey. Topographic information obtained from aerial photographs/mapping may be used in combination with surveyed channel cross-sections in the hydraulic analysis. The elevation datum of all information used in the hydraulic analysis shall be verified. All information shall be referenced directly to NAVD 1988 (and include local correlation to NGVD) unless otherwise approved by the [cityCity](#).

C. Methodology. Flood studies and analysis (including deep and/or fast flowing [FloodwayFloodways](#) and zero-rise analysis) shall be calculated using the U.S. Army Corps of Engineers HEC-RAS computer model (or subsequent revision) unless otherwise approved by the [cityCity](#).

D. Adequacy of the Hydraulic Model. Edgewood considers the following (but not limited to) factors when determining the adequacy of the hydraulic model for use in the [FloodwayFloodway](#)/floodplain model:

1. Cross-section of a downstream starting location and spacing.
2. Differences in energy grade line (significant differences in the energy grade line from cross-section to cross-section are an indication that cross-sections should be more closely spaced or that other inaccuracies exist in the hydraulic model).
3. Methods and results for analyzing the hydraulics of structures such as bridges and culverts.
4. Lack of flow continuity.
5. Use of a gradually varied flow model. In certain cases, rapidly varied flow techniques may need to be used in combination with a gradually varied flow model such as weir flow over a levee, flow through a spillway of a dam, or special application of bridge flow (pressure flow if bridge superstructure is shown to be submerged for the study event).
6. Manning's "n" value.

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7. Calibration of hydraulic model to known ~~and~~/or observed flow stage elevations including past flood events.
8. Special applications. In some cases, steady state one-dimensional hydraulic models may not be sufficient for preparing the floodplain/~~floodway~~~~Floodway~~ analysis. This may occur where sediment transport, two-dimensional flow, or other unique hydraulic circumstances affect the accuracy of the model. In these cases, the project ~~e~~Engineer must propose and obtain ~~department~~~~Department~~ approval of alternative models for establishing the water surface elevations.
9. All reported error ~~and~~/or warning messages by the model must be properly and adequately addressed ~~and~~/or resolved and included in the report for review verification.

Article V. Zero-Rise Analysis (ZRA)

A. Zero-rise analysis (ZRA) is required where ~~e~~Encroachment within the ~~f~~Flood ~~f~~Ringe area is allowed and approved by the ~~department~~~~Department~~. The ZRA must show that the proposed development ~~e~~Encroachment in the ~~f~~Flood ~~f~~Ringe area will not ~~create show a measurable more than a 0.01-foot rise in the b~~Base ~~f~~Flood elevation ~~(i.e., less than 0.01 foot);~~ resulting from a comparison of existing conditions and proposed conditions. This is directly attributable to development in the floodplain but not attributable to manipulation of mathematical variables such as roughness factors, coefficients, discharge, and other hydraulic parameters.

B. In addition to those items listed in subsection (A) of this article, the following shall be included in a ZRA:

1. ~~Floodway~~~~Floodway~~ boundaries (based on zero-rise) are to follow the stream lines and reasonably balance the rights of property owners on either side of the ~~floodway~~~~Floodway~~. Use of the automatic equal conveyance encroachment option in the model will be considered equitable.
2. The ZRA must include a sufficient number of cross-sections in order to accurately model the subject fill and compensatory storage areas of the site. In all cases, cross-sections shall be located downstream, through the subject site and upstream of the site at a very minimum. They shall also be located where changes in channel and the fill material characteristics occur, such as slope, shape, and roughness. The sections shall also be located perpendicular to the flow path in the channel and the outside overbank areas. The ~~department~~~~Department~~ shall review and approve the proposed number and location of cross-sections. All cross-sections and surveys shall be prepared and certified by a professional land surveyor or registered professional ~~e~~Engineer in the state of Washington.
3. The difference between two profiles of water surface elevation at the cross-section, ~~(e.g., difference between existing and encroached water surface)~~. The model must report 0.01 feet or less an allowable change in the water surface elevation. This must be shown in the profile graphical plot as well.
4. The difference between profiles of the energy grade line at the cross-section. The model must report 0.01 feet or less. This is the allowable change in the energy grade line. This must be shown in the profile graphical plot as well.

C. Conveyance Capacity.

1. The ZRA must also show that the proposed development ~~e~~Encroachment in the ~~f~~Flood ~~f~~Ringe area will not show a measurable decrease (less than 0.01 CFS) in the conveyance capacity of the channel, resulting from a comparison of existing conditions and proposed conditions, for each of the cross-sections. This is also directly attributable to development in the ~~floodplain~~~~Floodplain~~ but not attributable to manipulation of mathematical variables such as roughness factors, coefficients, discharge, and other hydraulic parameters.
2. The analysis must provide calculations of the reduction in conveyance caused by the proposed development ~~e~~Encroachment, assuming no change in the water surface elevation, and using the roughness coefficient value(s) appropriate for the proposed development.
3. The analysis must then provide calculations for the increase in conveyance of the proposed compensatory measure, using the roughness coefficient value(s) appropriate for the proposed development.

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4. Include a comparison analysis and discussion from subsections (C)(2) and (3) of this article. The comparison must adequately show that the conveyance capacity has not measurably decreased between the existing condition and proposed development condition.

Floodplain/~~Floodway~~Floodway Zero-Rise Certification

This is to certify that I am a duly qualified professional ~~e~~Engineer licensed to practice in the state of Washington.

This is to further certify that the attached ~~floodplain~~Floodplain/~~floodway~~Floodway zero-rise analysis conclusively shows that the proposed development of:

(Name of Development) Parcel Number

will not increase the 100-year ~~b~~Base ~~f~~Flood elevation(s) and widths nor reduce the conveyance capacity of the ~~floodplain~~Floodplain, ~~floodway~~Floodway, and its associated channel to the

(Name of River, Stream, Pothole or other Watercourse)

Supporting Data

Base Flood Elevation (Pre-Development) = _____ FT (NAVD 88)

Base Flood Elevation (Post-Development) = _____ FT (NAVD 88)

Conveyance Capacity (Pre-Development) = _____ CFS

Conveyance Capacity (Post-Development) = _____ CFS

with compensatory storage)

Signature Date

Title Firm Name

Address

City

State Zip Code

APPENDIX B**CHANNEL MIGRATION ZONE STUDY REQUIREMENTS**

The channel migration zone (CMZ) is the area within the lateral extent of likely stream channel movement due to stream bank destabilization and erosion, rapid stream incision, and shifts in location of stream channels. The CMZ will define areas in which, to the best information available, development should be regulated due to the dangers expected from erosion.

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Article I. Determining Channel Migration Zone Limits

A. The CMZ shall be based on available historic records of channel migration, or 100 years of calculated channel migration whichever is greater, and will generally include those areas that encompass:

1. The limit of geologic controls, such as hill slope, bedrock outcrop, or abandoned ~~floodplain~~Floodplain terrace;
2. Side channels, abandoned channels, and oxbows; and
3. Outside edges of progressive bank erosion at meander bends.

B. Channel migration over the 100-year time frame can be estimated and predicted from geomorphic analysis of annual bank erosion rates, historic meander belt width, and measured meander bend amplitudes, potential avulsion sites, and previous river channel locations as depicted on historic aerial photographs and maps. The 100-year time span represents the time required to grow mature trees that can provide functional large woody debris to streams.

C. The CMZ boundaries will be determined using the following specific criteria:

1. The representative average annual rate of channel migration in the affected river reach is calculated by dividing the lateral distance eroded with the corresponding elapsed time shown in sequential aerial photographs or historic maps (distance/time equals channel movement). Measurements from reaches that have had some form of bank armoring shall not be included. Historical records will need to be checked closely for this information.
2. Identify the width of the channel migration zone by multiplying the representative average annual erosion rate by 100 years.

D. Areas separated from the active channel by legally existing artificial channel constraints (levees, roads, driveways, etc.) that limit bank erosion and channel avulsion to the 100-year recurrence interval flood elevation plus three feet of freeboard shall serve as a boundary for the outer limit of the CMZ.

Article II. Channel Migration Zone Study Content and Required Information

Three copies of the completed channel migration zone study shall be submitted. The study submittal must be stamped by a licensed professional ~~e~~Engineer or professional ~~g~~Geologist with five (5) years² of experience in fluvial geomorphology, river dynamics, or geotechnical engineering. The CMZ study shall include the following information in addition to that required for the drainage plan of a proposed project. The CMZ study will consist of a written technical report including:

- A. Detailed methods, techniques, and assumptions used in determining the location of the CMZ.
- B. A vicinity map and site with scale, north arrow, and parcel number(s) or specific site being studied.
- C. A clear statement of the requested revision to ~~the Pierce e~~County's determination of the 100-year ~~floodplain~~Floodplain limits as the CMZ.
- D. A clearly stated conclusion of the study results that support the requested revision. The conclusion needs to document the basis for the revision, show how the data presented refutes the 100-year ~~floodplain~~Floodplain limits as the CMZ, and calculates the new results using the new information.
- E. A map clearly delineating the subject property and the CMZ of the adjacent watercourse. In addition to providing a hard copy of the CMZ map, the CMZ map shall also be provided in ARC-View shapefile format. Contact the ~~city-~~
~~GIS d~~Department for mapping and aerial imaging standards. (Ord. 02-200 § 2).

Chapter 14.890**LANDSLIDE HAZARD AREAS**

Sections:

- 14.890.010 Purpose.
- 14.890.020 Landslide ~~h~~Hazard ~~a~~Areas.
- 14.890.030 Landslide ~~h~~Hazard ~~a~~Area review procedures.
- 14.890.040 Landslide and ~~e~~Erosion ~~h~~Hazard ~~a~~Area standards.
- 14.890.050 ~~Buffer~~Buffer requirements.
- 14.890.060 Appendices.

14.890.010 Purpose.

The ~~following statements describe the~~ purpose of this chapter is to:

- A. Protect human life and health.
- B. Regulate uses of land in order to avoid damage to structures and property being developed and damage to neighboring land and structures.
- C. Identify and map active ~~l~~Landslide ~~h~~Hazard ~~a~~Areas.
- D. Minimize the ill effects on ~~wetland~~Wetlands and critical fish and wildlife habitat that can result from landslides.
- E. Establish permit requirement and review procedures for development proposals in areas with potential landslides. (Ord. 02-200 § 2).

14.890.020 Landslide ~~h~~Hazard ~~a~~Areas.

A. Landslide Hazard Areas ~~Indicators~~. Landslide ~~h~~Hazard ~~a~~Areas are areas potentially subject to mass movement due to a combination of geologic, seismic, topographic, hydrologic, or manmade factors. Landslide ~~h~~Hazard ~~a~~Areas ~~can be are~~ identified by the presence of any of the following ~~five (5)~~ indicators.:

1. Areas of historic failures, including areas of unstable, old and recent landslides or landslide debris within a head scarp.
2. Areas with all ~~three (3)~~ of the following characteristics:
 - a. Slopes steeper than 15 percent with a vertical relief of 20 feet or more; and
 - b. Hillsides that intersect geologic contacts with a relatively permeable sediment overlying a relatively impermeable sediment or bedrock; and
 - c. Springs or groundwater seepage.
3. Areas exhibiting geomorphological features indicative of past slope failure within the last 10,000 years, such as hummocky ground, back-rotated benches on slopes, tension cracks, etc.
4. Any area with a slope of 40 percent or steeper and with a vertical relief of 15 or more feet. ~~Manmade-~~
 - a. ~~Slopes of 40 percent or steeper with a vertical relief of 15 feet or more~~ may be exempted from the requirements of this section ~~of the code~~ provided that it can be demonstrated by a qualified ~~g~~Geotechnical ~~p~~Professional that such an exemption does not result in an increased risk of landsliding or damage to the subject site, nearby properties, ~~or and~~ existing structures, ~~and, a~~Any associated hazards to proposed structures ~~are must be~~ suitably mitigated.

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b. For the purposes of determining whether a slope is considered to be a hazard area, the horizontal and vertical distance between the top of slope and toe of slope are utilized.

5. Areas that are at risk of mass movement due to seismic events.

B. Potential Landslide Hazard Areas. Potential hazard areas, as depicted on the Geologically Hazardous Areas map, are those areas where the suspected risk of slope instability and landslide is sufficient to require a geological assessment to assess the potential for active landslide activity. Potential hazard areas are determined by using the following criteria:

1. Areas that possess one or more of the hazard area indicators (stratigraphy, topography, emergent groundwater seepage, etc.) as set forth in subsection (A) of this section and any adjacent area within a distance of 65 feet. These areas include, but are not necessarily limited to, those areas designated on the City's Geologically Hazardous Areas map as moderate or steep slope areas.

14.80.030 Landslide hazard area review procedures.

A. General Requirements.

1. The eity's Geologically Hazardous Areas map provides an indication of where potential hazard areas are located within the city. The actual presence or location of ~~landslide of~~ hazard areas that have not been mapped, but may be present on or adjacent to a site, shall be determined using the geological assessment procedures established in this chapter.

2. The department will complete a review of the Geologically Hazardous Areas map and other source documents for any proposed regulated activity to determine whether the site is, or may be, located within a hazard area or potential hazard area. Identification of a hazard area or potential hazard area may also occur as a result of field investigations conducted by department staff.

3. When the department's maps or sources indicate that the site for a proposed regulated activity is or may be located within a hazard area or potential hazard area, the department shall require the submittal of a geological assessment as outlined in subsection (B) of this section.

4. Unless otherwise stated in this chapter, the critical protective measure provisions contained in EMC Chapter 14.10.080 shall apply.

B. Geological Assessment. A geological assessment is a site investigation process to evaluate the on-site geology affecting a subject property. The findings of the geological assessment shall be presented in a Landslide Hazard Geotechnical Verification or Geotechnical Report.

1. Geological assessments shall be submitted to the department for review and approval together with a hazard area application and associated fee.

2. A geological assessment shall include a field investigation and may include the use of historical air photo analysis, LiDAR mapping, review of regional geologic mapping, review of public records and documentation, and interviews with adjacent property owners, etc.

3. The geological assessment shall include the following information and analysis contained in paragraphs a-d.:

a. A determination of which areas on the site or within the vicinity of the site meet the criteria for a hazard area as set forth herein ~~EMC 14.80.020(A)~~.

b. Consider the run-out hazard of landslide debris to the proposed development that starts upslope (whether part of the subject property or on a neighboring property) and/or the impacts of landslide run-out on down slope properties.

c. The geological assessment shall include a detailed review of the field investigations, published data and references, data and conclusions from past geological assessments, or geotechnical investigations of the

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site, site-specific measurements, tests, investigations, or studies, as well as the methods of data analysis and calculations that support the results, conclusions, and recommendations.

~~d. All of the information required per EMC Section 14.10.080.C.~~

4. Geological assessments shall be prepared, signed, and dated by a ~~g~~Geotechnical ~~p~~Professional. ~~(as defined in Chapter 14.15 EMC and established in this chapter) and t~~The format shall be pre-approved by the ~~d~~Department.

5. A ~~g~~Geotechnical ~~p~~Professional shall complete a field investigation and geological assessment to determine whether or not a ~~l~~andslide ~~h~~azard ~~a~~Area is likely to exist within 300 feet of the site. Where access to off-site properties is not available by the ~~g~~Geotechnical ~~p~~Professional, evaluation of off-site landslide hazards must include review of regional geologic mapping and LiDAR based topographic mapping.

a. The geological assessment shall be submitted in the form of geotechnical verification when the ~~g~~Geotechnical ~~p~~Professional finds that no ~~l~~andslide ~~h~~azard ~~a~~Area exists within 300 feet of the project area. ~~The geotechnical verification shall meet the requirements contained in EMC 14.80.060, Appendix A.~~

b. The geological assessment shall be submitted in the form of a ~~g~~Geotechnical ~~r~~Report when the ~~g~~Geotechnical ~~p~~Professional finds that a ~~l~~andslide ~~h~~azard ~~a~~Area exists within 300 feet of the proposed project area or when a ~~g~~Geotechnical ~~p~~Professional determines that mitigation measures are necessary in order to construct or develop within a potential ~~l~~andslide ~~h~~azard ~~a~~Area. ~~The geotechnical report shall meet the requirements contained in EMC 14.80.060, Appendix B.~~

6. Geological assessments that do not contain the ~~minimum~~ required information ~~or comply with the landslide hazard area standards set forth in EMC 14.80.030~~ will be returned to the ~~g~~Geotechnical ~~p~~Professional for revision.

7. The ~~department~~Department shall review the geological assessment and either:

- a. Accept the geological assessment; or
- b. Reject the geological assessment and require revisions or additional information.

~~8. When the geological assessment has been accepted, the department shall issue a decision on the landslide hazard area application.~~

~~9~~8. A geological assessment for a specific site may be valid for a period of up to five years when the proposed land use activity and surrounding site conditions are unchanged. However, if any environmental conditions associated with the site change during that five-year period, the applicant may be required to submit an amendment to the geological assessment. (Ord. 02-200 § 2).

14.890.040 Landslide and ~~e~~Erosion ~~h~~Hazard ~~a~~Area standards.

A. Landslide Hazard Areas. Any development, ~~e~~Encroachment, ~~filling, e~~Clearing ~~or and g~~Grading, building structures, impervious surfaces, ~~and or~~ vegetation removal shall be prohibited within ~~l~~andslide ~~h~~azard ~~a~~Areas and associated ~~buffer~~Buffers except as specified in the following standards:

1. Stormwater Conveyance. Stormwater conveyance shall be allowed when it is conveyed through a high-density polyethylene stormwater pipe with fuse-welded joints and when no other stormwater conveyance alternative is available. The pipe shall be located on the surface of the ground and be properly anchored so that it will continue to function in the event of an underlying slide.
2. Utility Lines. Utility lines will be permitted when no other conveyance alternative is available. The line shall be located above ground and properly anchored and/or designed so that it will continue to function in the event of an underlying slide.
3. Roads, Bridges, and Trails. Roads, bridges, and trails shall be allowed when all of the following conditions have been met:

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a. Mitigation measures are provided that ensure the roadway prism and/or bridge structure will not be susceptible to damage from landslide-induced ground deformation or impact/coverage by landslide debris. Mitigation measures shall be designed for static and seismic loading conditions in accordance with the most recent version of the American Association of State Highway and Transportation Officials (AASHTO) Manual.

b. The road is not a sole access for a development.

c. The removal or disturbance of vegetation ~~and, clearing or grading~~ activities shall be prohibited during the wet season ~~from~~ (November 1st ~~to~~ until May 1st).

B. Landslide Hazard Management Areas. All ~~r~~regulated ~~a~~activities may be allowed in areas located within 300 feet of a ~~l~~andslide ~~h~~azard ~~a~~Area subject to the following standards:

1. The ~~department~~Department reviews and approves a geological assessment – ~~g~~Geotechnical ~~r~~Report and determines that the potential ~~l~~andslide ~~h~~azard ~~a~~Area is stable.

2. The proposed development is located outside of a ~~l~~andslide ~~h~~azard ~~a~~Area and any required ~~buffer~~Buffer~~as set forth in EMC 14.80.050~~.

3. The proposed recommendations and mitigation measures contained within the ~~g~~Geotechnical ~~r~~Report are adequate to reduce or mitigate risks to health and safety.

4. The proposed development shall not decrease the factor of safety for landslide occurrence below the limits of 1.5 for static conditions and 1.1 for dynamic conditions. Analysis of dynamic (seismic) conditions shall be based on a minimum horizontal acceleration as established by the current version of the International Building Code.

5. The removal and disturbance of vegetation ~~and, clearing or grading~~ activities shall be limited to the area of the approved development and shall not be allowed during the wet season ~~from~~ (November 1st ~~through~~ until May 1st) unless adequate provisions for wet season erosion have been addressed in the ~~g~~Geotechnical ~~r~~Report and approved by the ~~d~~Department.

6. Surface drainage from developed areas, including downspouts and runoff from paved or unpaved surfaces up slope, shall not be directed through a ~~l~~andslide ~~h~~azard ~~a~~Area or its associated ~~buffer~~Buffer unless it is conveyed in conformance with the provisions in EMC 14.80.030.

7. Stormwater retention facilities, including infiltration systems utilizing perforated pipe, are prohibited unless the slope stability impacts of such systems have been analyzed and mitigated by a ~~g~~Geotechnical ~~p~~Professional and the impacts have been determined to be negligible.

8. The proposed development shall not create a need for larger ~~l~~andslide ~~h~~azard ~~a~~Area ~~buffer~~Buffers and setbacks on neighboring properties unless approved through a notarized written agreement with the affected property owner(s).

9. The proposed development shall be sited far enough from regressing slope faces to project 120 years of useful life for the proposed structure(s) or infrastructure.

10. Any proposed lots must be completely located outside any identified ~~l~~andslide ~~h~~azard ~~a~~Areas or their associated ~~buffer~~Buffers.

11. Landslide ~~h~~azard ~~a~~Areas that are directly adjacent to any ~~r~~Riparian areas, or ~~wetland~~Wetlands, may be subject to additional ~~buffer~~Buffer requirements and standards. ~~See as set forth in EMC Chapter 14.450, Critical Fish and Wildlife Habitat Areas-EMC, Fish and Wildlife Habitat Conservation Areas, or wetlands as set forth in- and EMC Chapter 14.340, Wetlands-EMC, Wetlands for additional details.~~ (Ord. 02-200 § 2).

14.80.050 BufferBuffer requirements.

A. Determining ~~Buffer~~Buffer Widths.

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1. The ~~buffer~~Buffer width shall be measured on a horizontal plane from a perpendicular line established at the edge of the ~~l~~andslide ~~h~~Hazard ~~a~~Area limits, ~~(both from the top and toe of the slope).~~

2. A ~~buffer~~Buffer of undisturbed vegetation shall be required for a ~~l~~andslide ~~h~~Hazard ~~a~~Area. The required ~~buffer~~Buffer width is the greater amount of the distances described in EMC ~~Chapter 14.80.050~~:

- a. Fifty feet from all edges of the active ~~l~~andslide ~~h~~Hazard ~~a~~Area limits;
- b. A distance of one-third the height of the slope at the top of the active ~~l~~andslide ~~h~~Hazard ~~a~~Area and a distance of one-half the height of the slope at the bottom of an active ~~l~~andslide ~~h~~Hazard ~~a~~Area; or
- ~~c. The buffer widths may be reduced below the widths specified in EMC 14.80.050, or eliminated upon approval by the department of a geotechnical report that demonstrates that such a reduction would not result in an increased risk of landslide activity either on or off of the subject property.~~

B. Modification of ~~Buffer~~Buffer Widths. The ~~department~~Department may require a larger ~~buffer~~Buffer width than the ~~buffer~~Buffer distance, as determined in subsection (A) of this section, if any of the following are identified:

- 1. The adjacent land is susceptible to severe erosion and erosion control measures will not effectively prevent adverse impacts.
- 2. The area has a severe risk of slope failure or downslope stormwater drainage impacts. (Ord. 02-200 § 2).

14.890.060 Appendices.

A. Geological Assessment – Landslide Hazard Geotechnical Verification.

B. Geological Assessment – Landslide Hazard Geotechnical Report.

APPENDIX A**GEOLOGICAL ASSESSMENT – LANDSLIDE HAZARD GEOTECHNICAL VERIFICATION**

A. A geotechnical verification shall include the following:

- 1. The general ~~e~~Critical ~~a~~Areas report requirements ~~in EMC 14.10.082~~.
- 2. A description of the surface and subsurface geology, hydrology, soils, and vegetation at the site and a list of the ~~l~~andslide ~~h~~Hazard ~~a~~Area indicators, ~~as set forth in EMC 14.80.020(A)~~, that were found on or in the vicinity of the site.
- 3. A summary of the results, conclusions, and recommendations resulting from the geological assessment of the landslide hazards on or in the vicinity of the site. ~~This summary shall address all of the information required in EMC 14.80.030(B). The summary should include a description of observations during the site visit and a discussion of information obtained from review of the listed documents in EMC 14.80.030(B)(2)~~
- 4. An accurate site plan drawn at a scale of one inch equals 20 feet, one inch equals 30 feet, one inch equals 50 feet (or other scale deemed appropriate by the ~~department~~Department) is required. The ~~department~~Department may require that the site plan information listed below be based on a field survey by a licensed surveyor. The site plan shall include:
 - a. The limits ~~and~~/ location of ~~the any~~ active ~~l~~andslide ~~h~~Hazard ~~a~~Area(s).
 - b. The limits ~~and~~/ location of the required landslide hazard ~~buffer~~Buffer ~~based upon the requirements set forth in EMC 14.80.050(A)~~.
 - c. The location of any existing and proposed structures, utilities, on-site septic systems, wells, and stormwater management facilities.

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- d. The full geographical limits of the proposed project area ~~or~~ area to be developed).
- e. Dimension the closest distance between the identified active ~~l~~andslide ~~h~~azard ~~a~~rea boundary and the project area.
- f. Existing topography on the site presented in two-foot contours.
- g. Property lines for the site.
- h. North arrow and plan scale.

B. The ~~g~~Geotechnical ~~p~~Professional who prepared the verification document shall stamp the verification with ~~his or her~~ ~~their~~ license stamp ~~or~~ /seal.

C. Geotechnical verifications shall be in conformance with a format that is pre-approved by the ~~department~~Department.

APPENDIX B

GEOLOGICAL ASSESSMENT – LANDSLIDE HAZARD GEOTECHNICAL REPORT

A. At a minimum, a ~~g~~Geotechnical ~~r~~Report shall include the following:

1. The general ~~e~~Critical ~~a~~reas report requirements ~~in EMC 14.10.082.~~
2. A description of the surface and subsurface geology, hydrology, soils, and vegetation of the site and a list of the ~~l~~andslide ~~h~~azard ~~a~~rea indicators, ~~as set forth in EMC 14.80.020(A),~~ that were found on or in the vicinity of the site.
3. A summary of the results, conclusions, and recommendations resulting from the geological assessment of the landslide hazards on or in the vicinity of the site. ~~This summary shall address all of the information required in EMC 14.80.030(B).~~
4. An accurate site plan drawn at a scale of one inch equals 20 feet, one inch equals 30 feet, one inch equals 50 feet (or other scale deemed appropriate by the ~~department~~Department) is required. The ~~department~~Department may require that the site plan information listed below be based on a field survey by a licensed surveyor. The site plan shall include:
 - a. The limits ~~and~~/ location of ~~the any~~ ~~l~~andslide ~~h~~azard ~~a~~rea(s) within the site. Delineation of the ~~l~~andslide ~~h~~azard ~~a~~rea limits shall identify any areas of historic landslide activity.
 - b. The limits ~~and~~/ location of the required landslide hazard ~~buffer~~Buffer ~~based upon the requirements set forth in EMC 14.80.050(A).~~
 - d. The location of any existing and proposed structures, utilities, on-site septic systems, wells, and stormwater management facilities.
 - e. The full geographical limits of the proposed project area ~~or~~ area to be developed).
 - f. Location and unique identifier of geotechnical borings, CPT soundings, or other surveys or explorations used to characterize subsurface conditions.
 - g. Extent of cross-section(s) used to evaluate the three-dimensional subsurface geologic and groundwater conditions at the site.
 - h. Extent of cross-section(s) used in the evaluation of slope instability.
 - i. Existing topography on the site presented in two-foot contours.

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j. Property lines for the site.

k. North arrow and plan scale.

5. Subsurface characterization data must be provided. The data shall be based on both existing and new information that may include soil borings, test pits, geophysical surveys, or other appropriate subsurface exploration methods, development of site-specific soil and/or rock stratigraphy, and measurement of groundwater levels including variability resulting from seasonal changes, alterations to the site, etc.

a. Geotechnical borings or CPT soundings will be advanced to a depth sufficient to characterize geologic conditions within and below the existing or potential landslide mass.

b. Other methods used for subsurface characterization shall be assigned a unique identifier, and the basic data presented in appropriate graphical and/or tabular format.

c. The three-dimensional subsurface conditions at the site shall be presented using one or more cross-sections showing location and depth penetration of geotechnical borings, CPT soundings, or other subsurface characterization methods, interpretation of the geometry of major soil units, and projected location of the static groundwater surface determined from the subsurface exploration. The cross-sections shall be presented at a scale of one inch equals 20 feet, one inch equals 30 feet, one inch equals 50 feet (or other scale deemed appropriate by the ~~department~~Department). Each cross-section shall have a legend with a description of the various major soil units.

6. A detailed description of any prior ~~g~~G grading activity, soil instability, or slope failure.

7. Where deemed appropriate by the ~~g~~G geotechnical ~~p~~P professional assessments and conclusions regarding slope stability for both the existing and developed conditions shall be presented and documented. These assessments and conclusions shall include the information provided below in EMC ~~Section 14.89~~0.060, Appendix B. The project ~~g~~G geotechnical ~~p~~P professional must provide justification for not including a slope stability analysis if one is excluded. The City's ~~g~~G geotechnical ~~p~~P professional reserves the right to request a slope stability analysis based on site conditions. If a dispute arises between the project ~~g~~G geotechnical ~~p~~P professional and the City's ~~g~~G geotechnical ~~p~~P professional regarding the need for a slope stability analysis, then the City reserves the right to require an independent, third party review to be paid for by the applicant to resolve the dispute.

a. Determination of the potential type(s) of landslide failure mechanisms, ~~(e.g., d~~Debris ~~f~~flow, rotational slump, ~~or~~ translational slip, ~~etc.)~~ that may affect the site.

b. Quantitative stability evaluation of slope conditions of the various failure mechanisms using state-of-the-practice modeling techniques. Limiting equilibrium methods of analysis shall state the stability conditions as a factor of safety. The most unstable failure geometry(ies) shall be presented in the form of a cross-section(s), with the least stable failure geometry for each failure mechanism clearly indicated. The stability evaluation shall also consider dynamic (earthquake) loading, and shall use a minimum horizontal acceleration as established by the current version of the International Building Code.

c. An analysis of slope regression rate shall be presented in those cases where stability is impacted or influenced by erosional processes (e.g., wave cutting, stream meandering, etc.) acting on the toe of the slope.

8. Mitigation recommendations using engineered measures to protect the proposed structure(s) and any adjacent structures, infrastructure, adjacent ~~wetland~~Wetlands, or critical fish and wildlife habitat from damage or destruction as a result of proposed construction activities shall be designed by a professional ~~e~~E engineer. Design plans and detailed geotechnical recommendations may be provided in a document separate from the ~~g~~G geotechnical ~~r~~R report. When appropriate, such recommendations/plans may include, but are not necessarily limited to:

a. Design plans and associated design calculations for engineered structures or drainage systems (e.g., structural foundation requirements, retaining wall design, etc.).

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b. Recommendations and requirements pertaining to the handling of surface and subsurface runoff in the developed condition.

c. Identification of necessary geotechnical inspections to assure conformance with the report mitigation and recommendations.

d. Proposed angles of cut and fill slopes, site ~~g~~G grading requirements, final site topography (shown as two-foot contours), and the location of any proposed structures, on-site septic systems, wells, ~~and~~ stormwater management features, or facilities associated with the development detailed within the body of the report and shown on a site map at the same scale as that required in subsection (A)(8) of this appendix.

e. Soil compaction criteria and compaction inspection requirements.

f. An analysis that indicates how the proposal meets the standards outlined in EMC ~~Chapter 14.80~~0.040.

g. Structural foundation requirements and estimated foundation settlement shall be provided if structures are proposed.

h. Lateral earth pressures.

i. Suitability of on-site soil for use as fill.

j. Mitigation measures for building construction on each lot for short plats, large lots, or formal plats such that additional ~~g~~G geotechnical ~~p~~P professional involvement is minimized during building construction.

B. The ~~g~~G geotechnical ~~r~~R report shall be prepared by an ~~e~~E engineering ~~g~~G geologist and shall be co-written by both an ~~e~~E engineering ~~g~~G geologist and professional ~~e~~E engineer where both geological interpretations and engineering analyses and designs are necessary or prudent in the mitigation of the landslide hazard.

C. The ~~g~~G geotechnical ~~p~~P professional(s) who prepared the ~~g~~G geotechnical ~~r~~R report shall stamp the report with ~~his or her~~ their license stamp ~~or~~ and seal.

D. The ~~d~~D department may request a ~~g~~G geotechnical ~~p~~P professional to provide additional information in the ~~g~~G geotechnical ~~r~~R report based upon existing conditions, changed conditions, or unique circumstances occurring on a case-by-case basis.

E. Geotechnical ~~r~~R reports shall be in conformance with a format that is pre-approved by the ~~d~~D department. (Ord. 05-247 § 1; Ord. 02-200 § 2).

Chapter 14.9100**SEISMIC (EARTHQUAKE) HAZARD AREAS**

Sections:

- 14.9100.010 Purpose.
- 14.9100.020 Seismic ~~h~~Hazard ~~a~~Areas.
- 14.9100.030 Seismic ~~h~~Hazard ~~a~~Area review procedures.
- 14.9100.040 Seismic ~~h~~Hazard ~~a~~Area standards.
- 14.9100.050 ~~Buffer~~ requirements.
- 14.9100.060 Appendices.

14.9100.010 Purpose.

Earthquakes have historically occurred throughout the Puget Sound region. Large earthquakes have caused loss of life and over a billion dollars in property damage. The purpose of this chapter is to protect the public health, safety, and general welfare of the citizens of Edgewood from the damaging effects of earthquakes. This chapter provides standards to ensure life safety and minimize public and private losses that may occur within a ~~s~~Seismic ~~h~~Hazard ~~a~~Area. (Ord. 02-200 § 2).

14.90100.020 Seismic ~~h~~Hazard ~~a~~Areas.

A. General. Seismic ~~h~~Hazard ~~a~~Areas are areas subject to severe risk of damage as a result of earthquake-induced landsliding, seismic ground shaking, dynamic settlement, fault rupture, or soil liquefaction.

B. Potential Seismic Hazard Areas. Potential ~~s~~Seismic ~~h~~Hazard ~~a~~Areas ~~are~~ those areas where the suspected risk of earthquake induced landsliding, dynamic settlement, fault rupture, ground deformation caused by soil liquefaction, or flooding is sufficient to require a further ~~s~~Seismic ~~h~~Hazard ~~a~~Area review ~~as set forth in EMC 14.90.030~~. These potential ~~s~~Seismic ~~h~~Hazard ~~a~~Areas are determined using the following criteria:

1. Earthquake Induced Landslide Hazard Areas. Areas identified as potential ~~h~~Landslide ~~h~~Hazard ~~a~~Areas in EMC ~~Section 14.890.020~~.
2. Liquefaction ~~and/or~~ Dynamic Settlement Hazard Areas. Areas identified as high and moderate liquefaction and dynamic settlement hazard areas on the Geologically Hazardous Areas map.
3. Fault Rupture Hazard Areas.

C. Seismic Hazard Area Categories.

1. Earthquake Induced Landslide Hazard Areas. Earthquake induced ~~h~~Landslide ~~h~~Hazard ~~a~~Areas include slopes that can become unstable as a result of strong ground shaking, even though these areas may be stable under non-seismic conditions.
2. Liquefaction and/or Dynamic Settlement Hazard Areas.
 - a. Liquefaction hazard areas are areas underlain by unconsolidated (corrected Standard Penetration Test blow counts, $[(N_1)_{60}]$ less than 30) sandy or silt soils (Unified Soil Classification System S or M soil-types) and a shallow groundwater table (static groundwater depth less than 30 feet) capable of liquefying in response to earthquake shaking.
 - b. Dynamic settlement hazard areas are areas underlain by a significant thickness (more than 10 feet) of loose or soft soil not susceptible to liquefaction (e.g., peats or organic silts and clays, unsaturated loose sands or silts), but that could result in vertical settlement of the ground surface in response to earthquake shaking.
3. Fault Rupture Hazard Areas. Fault rupture hazard areas include:

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- a. Active fault rupture hazard areas are areas where displacement (movement up, down, or laterally) of the ground surface has occurred during past earthquake(s) in the Holocene Epoch; and
- b. Areas adjacent to the active fault rupture hazard area that may be potentially subject to ground surface displacement in a future earthquake.

14.90100.030 Seismic ~~h~~Hazard ~~a~~Area review procedures.

A. General Requirements.

1. The ~~city~~City's Geologically Hazardous Areas map provides an indication of where potential ~~s~~Seismic ~~h~~Hazard ~~a~~Areas are located within the city.
2. The ~~d~~Department will complete a review of the Critical Areas Atlas – Seismic Hazard Area Map for any regulated activity to determine whether the site for a proposed regulated activity is located within a ~~s~~Seismic ~~h~~Hazard ~~a~~Area.
3. When the ~~d~~Department's maps indicate that the site for a proposed regulated activity is located within a potential liquefaction or dynamic settlement hazard area, the ~~department~~Department shall require the submittal of a geological assessment as outlined in subsection (B) of this section.
4. When the ~~d~~Department's maps indicate that the site for a proposed regulated activity is located within a potential fault rupture hazard area, the ~~department~~Department shall require the submittal of a geological assessment as outlined in subsection (B) of this section. The requirement to submit a geological assessment may be waived at the ~~department~~Department's discretion when it is determined that the proposed project area for the regulated activity is located outside the potential fault rupture hazard area.
5. When the ~~d~~Department's maps indicate that the site for a proposed regulated activity is or may be located within a potential earthquake-induced ~~l~~Landslide ~~h~~Hazard ~~a~~Area, the ~~d~~Department shall conduct a review pursuant to the requirements set forth in EMC ~~Chapter 14.890.030~~.
6. Unless otherwise stated in this chapter, the ~~e~~Critical ~~a~~Area protective measure provisions contained in EMC ~~Chapter 14.10.080~~ shall apply.

B. Geological Assessments. A geological assessment is a site investigation process to evaluate the on-site geology affecting a subject property and define the extent and severity of potential seismic hazards.

1. A geological assessment shall be required when the ~~department~~Department's maps, sources, or field investigation indicate a site contains a potential liquefaction, dynamic settlement, or fault rupture hazard area. Geological assessments shall be submitted to the ~~department~~Department for review and approval together with a ~~s~~Seismic ~~h~~Hazard ~~a~~Area ~~a~~Application.
2. A ~~g~~Geotechnical ~~p~~Professional(s) shall complete a field investigation and geological assessment to determine whether or not the site for a proposed regulated activity is located within a liquefaction or dynamic settlement hazard area.
 - a. The geological assessment shall be submitted in the form of a geotechnical verification when the ~~g~~Geotechnical ~~p~~Professional(s) finds that no liquefaction or dynamic settlement hazard area exists within the proposed project area. ~~The geotechnical verification shall meet the requirements contained in EMC 14.90.060, Appendix A.~~
 - b. The geological assessment shall be submitted in the form of a ~~g~~Geotechnical ~~r~~Report when the ~~g~~Geotechnical ~~p~~Professional(s) finds that a liquefaction or dynamic settlement hazard area exists within the proposed project area. ~~The geotechnical report shall meet the requirements contained in EMC 14.90.060, Appendix A.~~
3. A ~~g~~Geotechnical ~~p~~Professional shall complete a field investigation and geological assessment presented in the form of a ~~g~~Geotechnical ~~r~~Report to determine whether or not the site for a proposed regulated activity is located within a fault rupture hazard area. ~~The geological assessment shall meet the requirements contained in-~~

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~~EMC 14.90.060, Appendix B.~~ Any structural recommendations proposed to mitigate the fault rupture hazard that are included in the ~~g~~Geotechnical ~~r~~Report shall be prepared by an ~~e~~Engineer.

4. All geological assessments for seismic hazards submitted under this chapter shall include, at a minimum, the following ~~items identified in paragraphs a-i:~~

- a. ~~The dates when the geological assessment was conducted and when the assessment was prepared. All of the items required per EMC Section 14.10.080.C.~~
- b. The parcel number(s) of the subject property.
- c. Site address, if the ~~e~~ityCity has assigned one.
- d. A brief description of the project (including the proposed land use) and the area to be developed.
- e. A map showing the property lines for the site, existing two-foot contours of the existing site topography, and the location of any existing structures, utilities, wells, stormwater or septic systems, or other developments.
- f. A site plan delineating the limits of the proposed development and the location of all areas of the site subject to potential seismic hazards based on the Geologically Hazardous Areas map and, if applicable, limits of associated ~~buffer~~Buffers.
- g. A description of the surface and subsurface geology, hydrology, soils, and vegetation of the site.
- h. A detailed overview of the field investigations, published data and references, data and conclusions from past geological assessments or geotechnical investigations of the site, site-specific measurements, tests, investigations, or studies, as well as the methods of data analysis and calculations that support the determination regarding whether liquefaction and/or dynamic settlement hazards are present on the site.
- i. The results, conclusions, and recommendations resulting from the geological assessment of the liquefaction and/or dynamic settlement hazards on the subject property as prepared by a ~~g~~Geotechnical ~~p~~Professional(s).

5. Geological assessments shall be prepared, signed, stamped, and dated by the appropriate ~~g~~Geotechnical ~~p~~Professional(s) ~~(as defined in Chapter 14.15 EMC and established in this chapter)~~ and the format shall be pre-approved by the ~~d~~Department.

6. Geological assessments that do not contain the minimum required information will be returned to the ~~g~~Geotechnical ~~p~~Professional(s) for revision.

7. The ~~d~~Department shall review the geological assessment and either:

- a. Accept the geological assessment and approve the ~~a~~Application; or
- b. Reject the geological assessment and require revisions or additional information.

8. A geological assessment for a specific site may be valid for a period of up to five years when the proposed land use activity and surrounding site conditions are unchanged. However, if any environmental conditions associated with the site change during that five-year period, the applicant may be required to submit an amendment to the geological assessment. (Ord. 02-200 § 2).

14.90100.040 Seismic ~~h~~Hazard ~~a~~Area standards.

A. Earthquake Induced Landslide Hazard Areas. All standards set forth in ~~EMC~~ Chapter 14.890 ~~EMC~~ shall apply to earthquake induced ~~h~~Landslide ~~h~~Hazard ~~a~~Areas.

B. Liquefaction ~~and~~or Dynamic Settlement Hazard Areas.

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1. All building structures shall conform to the standards set forth in EMC Title 15, Buildings and Construction.

2. Utility Lines. Utility lines, except for gas pipelines, which are prohibited, will be permitted when no other conveyance alternative is available. The line shall be located above ground and properly anchored and/or designed so that it will continue to function in the event of seismically induced ground deformation. Provision for automatic shut-off of utilities in a ground-rupturing event will be required.

3. Roads, Bridges, and Trails. Roads, bridges, and trails shall be allowed when mitigation measures are provided that ensure the roadway prism ~~and~~/or bridge structure will not be susceptible to damage from seismic induced ground deformation. Mitigation measures shall be designed for static and seismic loading conditions in accordance with the most recent version of the American Association of State Highway and Transportation Officials (AASHTO) Manual and also for an estimated range of ground surface offset presented in the ~~g~~Geotechnical ~~r~~Report.

C. Fault Rupture Hazard Areas. Any development, ~~e~~ncroachment, ~~filling, g~~Clearing and Grading, or building structures shall be prohibited within fault rupture hazard areas and associated ~~buffer~~Buffers except as specified in the following standards:

1. Utility Lines. Utility lines, except for gas pipelines, which are prohibited, will be permitted when no other conveyance alternative is available. The line shall be located above ground and properly anchored and/or designed so that it will continue to function in the event of seismically-induced ground deformation. Provision for automatic shutoff of utilities in a ground-rupturing event will be required.

2. Roads, Bridges, and Trails. Roads, bridges, and trails shall be allowed when all of the following conditions have been met:

a. Mitigation measures are provided that ensure the roadway prism and/or bridge structure will not be susceptible to damage from seismically-induced ground deformation. Mitigation measures shall be designed for static and seismic loading conditions in accordance with the most recent version of the American Association of State Highway and Transportation Officials (AASHTO) Manual and also for an estimated range of ground surface offset presented in the ~~g~~Geotechnical ~~r~~Report.

b. The road is not a sole access for a development. (Ord. 02-200 § 2).

~~14.90100.050~~ ~~Buffer~~Buffer requirements.

A. Determining ~~Buffer~~Buffer Widths.

1. The ~~buffer~~Buffer width shall be measured on a horizontal plane from a perpendicular line established at the edge of the fault rupture hazard area limits.

2. A ~~buffer~~Buffer is an area that is adjacent to a fault rupture hazard area that may be potentially subject to ground surface displacement in a future earthquake. No development shall be permitted within a fault rupture hazard area and its associated ~~buffer~~Buffer. The required ~~buffer~~Buffer width is the greater amount of the following distances:

a. Fifty feet from all edges of a fault rupture hazard area, except for high occupancy or essential facilities, where the minimum ~~buffer~~Buffer distance shall be 100 feet; or

b. The required ~~buffer~~Buffer width is the minimum distance recommended by the ~~g~~Geotechnical ~~p~~Professional(s).

B. Modification of ~~Buffer~~Buffer Widths. The Department may require a larger ~~buffer~~Buffer width than the ~~buffer~~Buffer distance, as determined in subsection (A) of this section, if the ~~department~~Department determines the standard or proposed ~~buffer~~Buffer is not adequate to protect the health, safety, or welfare of any proposed development. (Ord. 02-200 § 2).

~~14.90100.060~~ ~~Appendices~~.

A. Geological Assessments – Liquefaction or Dynamic Settlement Hazard Areas.

B. Geological Assessments – Fault Rupture Hazard Area Geotechnical Report.

APPENDIX A

GEOLOGICAL ASSESSMENTS – LIQUEFACTION OR DYNAMIC SETTLEMENT HAZARD AREAS

Article I. Geotechnical Verification

A. A geotechnical verification shall, at a minimum, include the following:

1. The general ~~e~~Critical ~~a~~Areas report requirements ~~in EMC 14.10.082.~~
2. The geotechnical verification shall include all mandatory items listed in EMC ~~Chapter 14.9100-030(B)(4).~~
3. The geological assessment must include a determination that no liquefaction ~~and/or~~ dynamic settlement hazard exists within the proposed project area.
4. The verification shall include an accurate site plan drawn at a scale of one inch equals 20 feet, one inch equals 30 feet, one inch equals 50 feet (or other scale deemed appropriate by the ~~department~~Department) is required. The ~~department~~Department may require that the site plan information be based on a field survey by a licensed surveyor. The site plan shall include:
 - a. Property lines for the site, and the location of any existing structures.
 - b. The full geographical limits of the proposed project area or conceptual project area (i.e., area to be developed) and the location of any proposed structures, on-site septic systems, wells, and stormwater management features or facilities associated with the development, if known.

B. The ~~g~~Geotechnical ~~p~~Professional(s) who prepared the geotechnical verification shall stamp the verification with ~~his or her~~their license stamp ~~or~~ seal.

C. Hold harmless clauses, disclaimers, and limitations are not allowed within a geotechnical verification.

Article II Geotechnical Report

A. A ~~g~~Geotechnical ~~r~~Report shall, at a minimum, include the following:

1. The general ~~e~~Critical ~~a~~Areas report requirements ~~in EMC 14.10.082.~~
2. The document shall include all mandatory items listed in EMC ~~Chapter 14.9100-030(B)(4).~~ The report shall be prepared by an ~~e~~Engineer and shall be co-written by an ~~e~~Engineering ~~g~~Geologist where geological interpretations and conclusions critical to the assessment of liquefaction and/or dynamic settlement hazard and potential effects are necessary or prudent. The report shall specify the desired performance level of the structures and other development facilities, (e.g., safety to building occupants, minimal damage to structure, post-earthquake serviceability for pre-earthquake operations, ~~or~~ no damage, ~~etc.~~).
3. The results, conclusions, and recommendations resulting from the geological assessment of the liquefaction ~~and/or~~ dynamic settlement hazards on the subject property as prepared by the ~~g~~Geotechnical ~~p~~Professional(s).
4. The geological assessment- ~~g~~Geotechnical ~~r~~Report shall include:
 - a. A statement that the proposed project area falls within a liquefaction and/or dynamic settlement hazard area.
 - b. A detailed engineering evaluation of expected ground displacements or other liquefaction ~~and/or~~ dynamic settlement effects, (e.g., bearing failures, flotation of buried tanks, ~~or similar, etc.~~) and proposed mitigation measures to ensure an acceptable level of risk for the proposed structure type or other development facilities, as well as the proposed land use type ~~or~~ (~~etc.~~, occupancy category). The minimum

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level of acceptable risk for any proposed structure or development ~~the~~ facility shall ensure the life safety of any occupant. Where appropriate, a range of mitigation options should be considered depending on site conditions, the intended use of the structures, and acceptable levels of settlement.

5. The report shall include a site plan drawn to scale. The ~~department~~Department may require that the site plan information be based on a field survey by a licensed surveyor. The site plan shall include:

- a. Property lines for the site and the location of any existing structures.
- b. The limits ~~or~~ location of any liquefaction ~~and~~ or dynamic settlement hazard area(s) ~~as set forth in EMC 14.90.020(C)(2).~~
- c. The full geographical limits of the proposed project area or conceptual project area (i.e., area to be developed) and the location of any proposed structures, on-site septic systems, wells, and stormwater management features or facilities associated with the development, if known.
- d. Location and unique identifier of geotechnical explorations used to characterize subsurface conditions.

6. The geotechnical study shall include field exploration sufficient to assess the potential for liquefaction or dynamic settlement hazards and options for mitigation of those hazards. Copies of the exploration logs shall be provided in the report. The geotechnical study shall include field exploration sufficient to assess the potential for liquefaction or dynamic settlement hazards and options for mitigation of those hazards. Copies of the exploration logs shall be included in the report. The project ~~g~~Geotechnical ~~p~~Professional must provide justification for the scope of the field exploration program. The City's ~~g~~Geotechnical ~~p~~Professional reserves the right to request additional exploration if deemed appropriate. If a dispute arises between the City's ~~g~~Geotechnical ~~p~~Professional and the project ~~g~~Geotechnical ~~p~~Professional regarding the scope of the field exploration, the City reserves the right to require an independent, third party review to be paid for by the applicant to resolve the dispute.

7. If beneficial to the assessment of seismic hazards for the project, the three-dimensional subsurface conditions at the site shall be presented using one or more cross-sections showing location and depth penetration of borings or CPT soundings, interpretation of the geometry of major soil units, and projected location of the static groundwater surface determined from the subsurface exploration. The cross-sections shall be presented at a scale of one inch equals 20 feet, one inch equals 30 feet, one inch equals 50 feet (or other scale deemed appropriate by the ~~department~~Department). Each cross-section shall have a legend with a description of the various major soil units. ~~The City's gGeotechnical pProfessional reserves the right to request inclusion of one or more cross sections in the gGeotechnical rReport. If a dispute arises between the project gGeotechnical pProfessional and the City's gGeotechnical pProfessional regarding this issue, then the City reserves the right to require an independent, third party review to be paid for by the applicant to resolve the dispute.~~

8. All assessments of liquefaction ~~and~~ or dynamic settlement hazards and effects will be based on a design earthquake using ground motion parameters consistent and equivalent to those specified in the most current version of the International Building Code. ~~These assessments shall use the shallowest groundwater table observed during or inferred from subsurface exploration and characterization, (e.g., the measured depth of static groundwater immediately prior to abandonment of borings, or observation of iron-oxide mottling of soils samples, etc.).~~

9. Results of laboratory testing of samples retrieved during drilling and sampling shall be presented in order to support the values of fines contents used in subsequent analysis of liquefaction and/or dynamic settlement hazard. Where only CPT methods are used in site assessment, the correlation between fines content and CPT measurements will be discussed and documented. This documentation will require rigorous correlation of CPT and fines content measurements from similar geological deposits within the Puget Sound region.

10. The ~~g~~Geotechnical ~~r~~Report shall include a detailed assessment of the liquefaction and/or dynamic settlement hazard based on analysis of available subsurface data using state-of-the-practice methodologies. The results of the analysis shall be documented, and all results of intermediate and final calculations and results, including factors of safety, shall be included.

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11. When appropriate, the ~~g~~G~~eotechnical~~ ~~r~~R~~e~~port shall include an assessment of the potential for large lateral spreads or flow failures, bearing failures, settlement, limited lateral displacement, and flotation of buried facilities. The methodologies used must be, at a minimum, state-of-the-practice, and the conclusions regarding the potential and severity of the possible liquefaction and/or dynamic settlement induced failure modes shall be presented.

12. Alternative mitigative measures including structural and foundation design options and/or soil improvement techniques shall be evaluated and compared for their effectiveness in reaching the level of performance specified in the report introduction. Effectiveness of soil improvement techniques shall be specified in terms of post-treatment densification or strength improvement as measured by appropriate subsurface investigation and testing. The extent of the post-treatment verification testing shall be provided on a site map at the same scale as the map presented in subsection (A)(4) of this article. Geotechnical review of all final plans is required and the findings of the review shall be documented in writing.

B. The ~~g~~G~~eotechnical~~ ~~p~~P~~ro~~fessional(s) who prepared the ~~g~~G~~eotechnical~~ ~~r~~R~~e~~port shall stamp the report with ~~his or her~~ their license stamp ~~or~~ seal.

C. Hold harmless clauses, disclaimers, and limitations are not allowed within a ~~g~~G~~eotechnical~~ ~~r~~R~~e~~port.

APPENDIX B

GEOLOGICAL ASSESSMENTS – FAULT RUPTURE HAZARD AREA GEOTECHNICAL REPORT

A. A ~~g~~G~~eotechnical~~ ~~r~~R~~e~~port shall, at a minimum, include the following:

1. The general ~~e~~C~~ritical~~ ~~a~~A~~reas~~ report requirements ~~contained herein in EMC 14.10.082.~~
2. ~~The document shall include all mandatory items listed in EMC 14.90.030(B)(4).~~ The report shall be prepared by an ~~e~~E~~ngineer~~ and shall be co-written by an ~~e~~E~~ngineering~~ ~~g~~G~~eologist~~ where geological interpretations and conclusions critical to the assessment of liquefaction and/or dynamic settlement hazard and potential effects are necessary or prudent.
3. The following topics should be considered and addressed in detail where essential to support opinions, conclusions, and recommendations in any geologic report on faults. It is not expected that all the topics or investigative methods would be necessary in a single investigation. In specific cases, it may be necessary to extend some of the investigative methods well beyond the site or property being investigated.
 - a. Purpose and scope of investigation; description of proposed development.
 - b. Geologic and tectonic setting. Include seismicity and earthquake history.
 - c. Site description and conditions, including dates of site visits and observations. Include information on geologic units, graded and filled areas, vegetation, existing structures, and other factors that may affect the choice of investigative methods and interpretation of data.
 - d. Methods of Investigation.
 - i. Review of published and unpublished literature, maps, and records concerning geologic units, faults, groundwater barriers, and other factors.
 - ii. Stereoscopic interpretation of aerial photographs, review of LiDAR based topography, and other remotely sensed images to detect fault-related topography (geomorphic features), vegetation and soil contrasts, and other lineaments of possible fault origin. The area interpreted usually should extend beyond the site boundaries.
 - iii. Surface observations, including mapping of geologic and soil units, geologic structures, geomorphic features and surfaces, springs, deformation of engineered structures due to fault creep, both on and beyond the site.

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iv. Subsurface Investigations.

(A) Trenching and other excavations to permit detailed and direct observation of continuously exposed geologic units, soils, and structures; must be of adequate depth and be carefully logged (Taylor & Cluff 1973, Hatheway & Leighton 1979, McCalpin 1996b).

(B) Borings and test pits to permit collection of data on geologic units and groundwater at specific locations. Data points must be sufficient in number and spaced adequately to permit valid correlations and interpretations.

(C) Cone penetrometer testing (CPT) (Grant et al., 1997, Edelman et al., 1996). CPT must be done in conjunction with continuously logged borings to correlate CPT results with on-site materials. The number of borings and spacing of CPT soundings should be sufficient to adequately image site stratigraphy. The existence and location of a fault based on CPT data are interpretative.

v. Geophysical Investigations. These are indirect methods that require a knowledge of specific geologic conditions for reliable interpretations. They should seldom, if ever, be employed alone without knowledge of the geology (Chase & Chapman 1976). Geophysical methods alone never prove the absence of a fault nor do they identify the recency of activity. The types of equipment and techniques used should be described and supporting data presented (California Board of Registration for Geologists and Geophysicists, 1993).

(A) High-resolution seismic reflection (Stephenson et al., 1995, McCalpin, 1996b).

(B) Ground penetrating radar (Cai et al., 1996).

(C) Other methods include: seismic refraction, magnetic profiling, electrical resistivity, and gravity (McCalpin, 1996b).

vi. Age-dating techniques are essential for determining the ages of geologic units, soils, and surfaces that bracket the time(s) of faulting (Pierce 1986, Birkeland et al., 1991, Rutter & Catto, 1995, McCalpin, 1996a).

(A) Radiometric dating (especially ¹⁴C).

(B) Soil-profile development.

(C) Rock and mineral weathering.

(D) Landform development.

(E) Stratigraphic correlation of rocks, ~~and~~ minerals, ~~and~~ fossils.

(F) Other methods – artifacts, historical records, tephrochronology, fault scarp modeling, thermoluminescence, lichenometry, paleomagnetism, dendrochronology, etc.

vii. Other methods should be included when special conditions permit or requirements for critical structures demand a more intensive investigation.

(A) Aerial reconnaissance overflights.

(B) Geodetic and strain measurements.

(C) Microseismicity monitoring.

e. Conclusions.

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- i. Location and existence (or absence) of hazardous faults on or adjacent to the site; ages of past rupture events.
- ii. Type of faults and nature of anticipated offset, including sense and magnitude of displacement, if possible.
- iii. Distribution of primary and secondary faulting (fault zone width) and fault-related deformation.
- iv. Probability of, or relative potential for, future surface displacement. The likelihood of future ground rupture seldom can be stated mathematically, but may be stated in semiquantitative terms such as low, moderate, or high, or in terms of slip rates determined for specific fault segments.
- v. Degree of confidence in, and limitations of data and conclusions.

f. Recommendations.

- i. The recommended increase from the standard ~~buffer~~Buffer distance (50 feet) of proposed structures from fault rupture hazard areas. The recommended ~~buffer~~Buffer distance generally will depend on the quality of data and type and complexity of fault(s) encountered at the site and the proposed land use type (i.e., occupancy). In order to establish an appropriate ~~buffer~~Buffer distance from a fault located by indirect or interpretative methods (e.g., borings or cone penetrometer testing), the area between data points also should be considered underlain by a fault unless additional data are used to more precisely locate the fault. Additional measures (e.g., strengthened foundations, engineering design, and flexible utility connections) to accommodate warping and distributive deformation associated with faulting (Lazarte and others, 1994).
- ii. Risk evaluation relative to the proposed development.
- iii. Limitations of the investigation; need for additional studies.

g. References.

- i. Literature and records cited or reviewed; citations should be complete.
- ii. Aerial photographs or images interpreted – list type, data, scale, source, and index numbers.
- iii. Other sources of information, including well records, personal communications, and other data sources.

h. Illustrations. The following illustrations should be provided:

- i. A location map that identifies site locality, significant faults, geographic features, regional geology, seismic epicenters, and other pertinent data; 1:24,000 scale is recommended.
- ii. A site development map that shows site boundaries, existing and proposed structures and limits of the proposed project area, graded areas, streets, exploratory trenches, borings geophysical traverses, locations of faults, and other data; recommended scale is 1:2,400 (one inch equals 200 feet), or larger.
- iii. A geologic map that shows the distribution of geologic units (if more than one), faults and other structures, geomorphic features, aerial photo graphic lineaments, and springs; on topographic map 1:24,000 scale or larger; can be combined with subsection (B)(h)(i) or (ii) of this appendix.
- iv. Geologic cross-sections, if needed, to provide three-dimensional picture.
- v. Logs of exploratory trenches and borings that show details of observed features and conditions (note: these should not be generalized or diagrammatic). Trench logs should show topographic profile and geologic structure at a 1:1 horizontal to vertical scale; scale should be 1:60 (one inch equals five feet) or larger.

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vi. Geophysical data and geologic interpretations.

i. Appendix. Attach any supporting data not included above, (e.g., water well data, photographs, and aerial photographs).

4. The gGeotechnical pProfessional who prepared the gGeotechnical Report shall stamp the report with ~~his or her~~ their license stamp or seal.

5. The dDepartment may request a gGeotechnical pProfessional to provide additional information in the gGeotechnical rReport based upon existing conditions, changed conditions, or unique circumstances occurring on a case-by-case basis.

6. Hold harmless clauses, disclaimers, and limitations are not allowed to be included, neither expressly nor implied, within a geological assessment. (Ord. 02-200 § 2).

Chapter 14.110
EROSION HAZARD AREAS

Sections:

- 14.110.010 Purpose.
- 14.110.020 Erosion ~~h~~Hazard ~~a~~Areas.
- 14.110.030 Erosion ~~h~~Hazard ~~a~~Area review procedures.
- 14.110.040 Erosion ~~h~~Hazard ~~a~~Area standards.
- 14.110.050 ~~Buffer~~Buffer requirements.
- 14.110.060 Appendices.

14.110.010 Purpose.

The following statements describe the purpose of this chapter:

- A. Protect human life and health;
- B. Regulate uses of land in order to avoid damage to structures and property being developed and damage to neighboring land and structures;
- C. Identify and map ~~any e~~Erosion ~~h~~Hazard ~~a~~Areas;
- D. Minimize impacts on ~~wetland~~Wetlands and critical fish and wildlife species and their associated habitat that can result from erosion;
- E. Establish a permit requirement and review procedures for development proposals in areas with potential erosion hazards;
- F. Strike a balance between the need to maintain natural shoreline erosion/regression processes and the need to protect existing and proposed development. (Ord. 02-200 § 2).

14.110.020 Erosion ~~h~~Hazard ~~a~~Areas.

A. ~~Shoreline~~Erosion Hazard ~~Area~~ Indicators. ~~Shoreline e~~Erosion ~~h~~Hazard ~~a~~Areas are areas potentially subject to land regression or retreat due to a combination of geologic, seismic, ~~and/or~~ hydrologic, or manmade factors. ~~Shoreline Erosion h~~Hazard ~~a~~Areas can be identified by indicators of active land retreat as a result of ~~fl~~uvial ~~p~~Processes.

B. Erosion Hazard Area Categories.

1. Potential Erosion Hazard Areas. Potential ~~e~~Erosion ~~h~~Hazard ~~a~~Areas, as depicted on the Geologically Hazardous Areas map, are those areas where the suspected risk of erosion through either loss of soil, slope instability, or land regression is sufficient to require additional review to assess the potential for active erosion activity or apply additional standards. These potential ~~e~~Erosion ~~h~~Hazard ~~a~~Areas are determined using the following criteria:

- a. Shoreline Erosion Hazard Areas. Areas within 200 feet of a freshwater ~~(lake, pond, or shoreline.)~~ The distance shall be as measured landward perpendicularly from the edge of the ordinary high water mark.
- b. Riverine Erosion Hazard Areas. The rivers subject to regulation as a ~~CMZ~~channel-migration-zone listed in EMC ~~Section 14.8070.030020.B.4(B)(4).~~ Section 14.8070.030020.B.4(B)(4).
- c. Soil Erosion Hazard Areas. Areas identified as having slopes of 20 percent or greater and that are classified as having severe, or very severe erosion potential by the Soil Conservation Service, United States Department of Agriculture (USDA).

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2. Active Shoreline Erosion Hazard Areas. Land areas located directly adjacent to surface water bodies that, through the geological assessment process, are identified as regressing, retreating, or potentially unstable as a result of undercutting by wave action or bluff erosion. The limits of the active shoreline ~~e~~Erosion ~~h~~Hazard ~~a~~Area shall extend landward to include that land area that is calculated, based on the rate of regression, to be subject to erosion processes within the next 10-year time period.

3. Riverine Erosion Hazard Areas ~~or CMZs~~. Riverine ~~e~~Erosion ~~h~~Hazard ~~a~~Areas are located within the lateral extent of likely watercourse channel movement due to bank destabilization and erosion, rapid incision, and shifts in location of watercourse channels. ~~Riverine erosion hazard areas are also referred to as channel-migration zones (CMZs). Rivers and streams subject to erosion are regulated as a CMZ as listed in EMC 14.70.020(B)(4).~~

4. Soil Erosion Hazard Areas. Soil ~~e~~Erosion ~~h~~Hazard ~~a~~Areas are identified by the presence or absence of natural vegetative cover, soil texture condition, slope, and rainfall patterns, or man-induced changes to such characteristics that create site conditions which are vulnerable to erosion of the upper soil horizon. Soil ~~e~~Erosion ~~h~~Hazard ~~a~~Areas include those areas with slopes of 20 percent or greater and that are classified as having severe, or very severe erosion potential by the USDA Natural Resources Conservation Service. (Ord. 02-200 § 2).

14.110.030 Erosion ~~h~~Hazard ~~a~~Area review procedures.**A. General Requirements.**

1. The City's Geologically Hazardous Areas map provides an indication of where potential ~~e~~Erosion ~~h~~Hazard ~~a~~Areas are located. The actual presence or location of an ~~e~~Erosion ~~h~~Hazard ~~a~~Area ~~and/or~~ additional potential ~~e~~Erosion ~~h~~Hazard ~~a~~Area that have not been mapped, but may be present on or adjacent to a site, shall be determined using the procedures and criteria established in this chapter.
2. The ~~department~~Department will complete a review of the Geologically Hazardous Areas map, and any other source documents for any proposed regulated activity to determine whether the site for the regulated activity is located within a potential ~~e~~Erosion ~~h~~Hazard ~~a~~Area.
3. When the ~~department~~Department's maps, sources, or field investigations indicate that the site for a proposed regulated activity is located within a potential shoreline ~~e~~Erosion ~~h~~Hazard ~~a~~Area, the ~~department~~Department shall require a geological assessment as outlined in subsection (B) of this section.
4. When the ~~department~~Department's maps, sources, or field investigations indicate that the proposed project area for a regulated activity is located within a potential riverine ~~e~~Erosion ~~h~~Hazard ~~a~~Area ~~or CMZ (channel-migration zone)~~, the ~~department~~Department shall conduct a review pursuant to ~~the requirements set forth in EMC Chapter 14.8070.030. All standards set forth in Chapter 14.70 EMC shall apply to riverine erosion hazard areas (CMZs).~~
5. When the ~~department~~Department's maps, sources, or field investigations indicate that the proposed project area for a regulated activity is located within a potential soil ~~e~~Erosion ~~h~~Hazard ~~a~~Area, the ~~d~~Department shall require submittal of an erosion control plan pursuant to the requirements set forth in EMC Title 15, ~~Buildings and Construction~~.
6. Applicants requesting to develop a bulkhead along a shoreline shall be required to submit a ~~g~~Geotechnical ~~r~~Report. ~~The geotechnical report shall comply with the requirements established in EMC 14.110.060, Appendix C.~~
- ~~7. Unless otherwise stated in this chapter, the critical area protective measure provisions contained in EMC 14.10.080 shall apply.~~

B. Geological Assessment. A geological assessment is a site investigation process to evaluate the on-site geology affecting a subject property and proposed development.

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1. Geological assessments shall be submitted to the ~~department~~Department for review and approval together with a shoreline ~~e~~Erosion ~~h~~Hazard ~~a~~Area ~~a~~Application.
 2. The geological assessment shall include a field investigation and may also include review of public records and documentation, analysis of historical air photos, LiDAR mapping, published data and references, etc.
 3. The geological assessment shall include the following information and analysis ~~identified in paragraphs a-d~~:
 - a. An analysis of the shoreline erosion processes on and in the vicinity of the site including an evaluation of erosion and shoreline retreat that has occurred over the past decade and an estimated probable rate of erosion based upon the historic rate of erosion that has occurred on the site.
 - b. A determination of which areas on the site meet the criteria for an active shoreline ~~e~~Erosion ~~h~~Hazard ~~a~~Area ~~as set forth in EMC 14.110.020(B)(2)~~.
 - c. A determination of the area on the site or in the vicinity of the site that will experience regression in the next 120 years given natural processes.
 - d. ~~All of the information required per EMC Section 14.10.080.C.~~
 4. Geological assessments shall be prepared, signed, and dated by a ~~g~~Geotechnical ~~p~~Professional ~~(as defined in Chapter 14.15 EMC and established in this chapter)~~ and the format shall be pre-approved by the ~~department~~Department.
 5. A ~~g~~Geotechnical ~~p~~Professional shall complete a field investigation and geological assessment to determine whether or not an active shoreline ~~e~~Erosion ~~h~~Hazard ~~a~~Area exists within 200 feet of the site.
 - a. The geological assessment shall be submitted in the form of a geotechnical letter when the ~~g~~Geotechnical ~~p~~Professional finds that no active shoreline ~~e~~Erosion ~~h~~Hazard ~~a~~Area exists within 200 feet of the site. ~~The geotechnical letter shall meet the requirements contained in EMC 14.110.060, Appendix A.~~
 - b. The geological assessment shall be submitted in the form of geotechnical verification when the ~~g~~Geotechnical ~~p~~Professional finds that an active shoreline ~~e~~Erosion ~~h~~Hazard ~~a~~Area exists but is located more than 200 feet away from the proposed project area. ~~The geotechnical verification shall meet the requirements contained in EMC 14.110.060, Appendix B.~~
 - c. The geological assessment shall be submitted in the form of a ~~g~~Geotechnical ~~r~~Report when the ~~g~~Geotechnical ~~p~~Professional finds that an active shoreline ~~e~~Erosion ~~h~~Hazard ~~a~~Area exists within 200 feet of the proposed project area or when a ~~g~~Geotechnical ~~p~~Professional determines that mitigation measures, such as a bulkhead, are necessary in order to construct or develop within a potential shoreline ~~e~~Erosion ~~h~~Hazard ~~a~~Area. ~~The geotechnical report shall meet the requirements contained in EMC 14.110.060, Appendix C.~~
 6. The ~~department~~Department shall review the geological assessment and either:
 - a. Accept the geological assessment and approve the ~~a~~Application; or
 - b. Reject the geological assessment and require revisions or additional information.
 7. A geological assessment for a specific site may be valid for a period of up to five years when the proposed land use activity and surrounding site conditions are unchanged. However, if any environmental conditions associated with the site change during that five-year period, the applicant may be required to submit an amendment to the geological assessment.
- C. Riverine Erosion Hazard Area (Channel Migration Zones) Review. Riverine ~~e~~Erosion ~~h~~Hazard ~~a~~Areas shall be reviewed pursuant to the requirements set forth in EMC ~~Chapter 14.8070-030~~.

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D. Soil Erosion Hazard Area Review. Soil ~~e~~Erosion ~~h~~Hazard ~~a~~Areas shall be reviewed pursuant to the requirements set forth in EMC Title 15, Buildings and Construction. (Ord. 02-200 § 2).

14.110.040 Erosion ~~h~~Hazard ~~a~~Area standards.

A. Active Shoreline Erosion Hazard Areas. Any development, ~~e~~Encroachment, ~~filling, e~~Clearing, ~~or~~ and ~~g~~Grading, timber harvest, building structures, impervious surfaces, and vegetation removal shall be prohibited within active shoreline ~~e~~Erosion ~~h~~Hazard ~~a~~Areas and associated ~~buffer~~Buffers except as specified in the following standards:

1. Shoreline Erosion Protection Measures. Shoreline erosion protection measures located within or adjacent to freshwater or marine shorelines shall be allowed subject to the following:

- a. The proposed shoreline protection measure shall comply with the standards set forth in ~~EMC~~ Chapter 14.4050 – ~~EMC, Critical Fish and Wildlife Habitat Conservation~~ Areas.
- b. A geological assessment ~~shoreline erosion g~~Geotechnical ~~r~~Report ~~has been conducted in accordance with the provisions set forth in EMC 14.110.030(B)~~ that indicates that the shoreline is currently experiencing active erosion, (i.e., land retreat or regression).
- c. The use of the shoreline erosion protection measure will not cause a significant adverse impact on adjacent properties or critical fish and wildlife species and their associated habitat (i.e., increase erosion on adjacent properties).
- d. The use of ~~s~~Soft ~~a~~Armoring ~~t~~Techniques ~~(soil bioengineering erosion control measures)~~ is the preferred method for shoreline protection.
- e. Hard ~~a~~Armoring shoreline erosion control measures shall be approved only when a geological assessment ~~shoreline erosion g~~Geotechnical ~~r~~Report ~~as set forth in EMC 14.110.030(B)~~ has been completed and indicates the following:
 - i. The regression has been monitored on a yearly interval for a period of at least five consecutive years prior to allowing a bulkhead to be constructed. This monitoring shall be conducted by field survey measurements of a licensed surveyor. The ~~department~~Department may shorten or eliminate the monitoring period if there are indicators that the regression rate is rapid and an existing structure may be threatened prior to completion of the monitoring period;
 - ii. The use of beach nourishment alone or in combination with ~~s~~Soft ~~a~~Armoring ~~t~~Techniques is not adequate to protect the property from shoreline erosion processes; and
 - iii. The property contains an existing structure(s) that will be threatened within the next 10 years or the buildability of an undeveloped site will be threatened within the next 10 years if a ~~h~~Hard ~~a~~Armoring method of shoreline erosion protection is not provided.
- f. Hard ~~a~~Armoring shoreline protection measures shall not be allowed when structures can be located landward of the 120-year rate of regression area.

2. Stormwater Conveyance. Surface drainage into an active shoreline ~~e~~Erosion ~~h~~Hazard ~~a~~Area should be avoided. If there are no other alternatives for discharge, then drainage must be collected upland of the top of the active shoreline ~~e~~Erosion ~~h~~Hazard ~~a~~Area and directed downhill in a high density polyethylene stormwater pipe with fuse welded joints that includes an energy dissipating device at the base of the active ~~l~~Landslide ~~h~~Hazard ~~a~~Area. The pipe shall be located on the surface of the ground and be properly anchored so that it will continue to function in the event of an underlying slide. The number of these pipes should be minimized along the slope frontage.

3. Utility Lines. Utility lines will be permitted when no other conveyance alternative is available. The line shall be located above ground and properly anchored and/or designed so that it will continue to function in the event of an underlying slide.

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4. Roads, Bridges, and Trails. Roads, bridges, and trails shall be allowed when all of the following conditions have been met:

- a. Mitigation measures are provided that ensure the roadway prism and/or bridge structure will not be susceptible to damage from active erosion.
- b. The road is not a sole access for a development.

B. Shoreline Erosion Hazard Management Area. All ~~r~~Regulated ~~a~~Activities such as but not limited to building structures, impervious surfaces, vegetation removal, timber harvest, ~~and clearing~~ or ~~g~~Grading activities may be allowed in areas located within 200 feet of an active shoreline ~~e~~Erosion ~~h~~Hazard ~~a~~Area subject to the following standards:

1. The ~~department~~Department reviews and approves a geological assessment – shoreline erosion hazard ~~g~~Geotechnical ~~r~~Report and determines that the proposed project area is located outside an active shoreline hazard area and the required ~~buffer~~Buffer, ~~as set forth in EMC 14.110.050~~.
2. The proposed recommendations and mitigation measures contained within the ~~g~~Geotechnical ~~r~~Report are adequate to reduce or mitigate risks to the natural environment, health, and safety.
3. Surface drainage from the proposed project area, including downspouts, landscape irrigation systems, and runoff from paved or unpaved surfaces upland of the shoreline, shall not be directed through an active shoreline ~~e~~Erosion ~~h~~Hazard ~~a~~Area or its associated ~~buffer~~Buffer unless it is conveyed in conformance with the provisions in subsection (A)(2) of this section.
4. Stormwater retention and detention systems, such as dry wells and infiltration systems utilizing buried pipe or french drains, shall not be permitted unless such systems are designed by a professional ~~e~~Engineer and the ~~g~~Geotechnical ~~r~~Report indicates that such a system will not affect the stability of the shoreline.
5. Proposed developments, with the exception of shoreline erosion protection measures, shall be sited far enough from regressing shorelines to ensure 120 years of useful life for any proposed structures or infrastructure.

C. Riverine Erosion Hazard Area ~~or CMZ(Channel-Migration-Zones)~~ Review. Riverine ~~e~~Erosion ~~h~~Hazard ~~a~~Areas shall be reviewed pursuant to the requirements set forth in EMC ~~Chapter 14.870.030~~.

D. Soil Erosion Hazard Area Review. Soil ~~e~~Erosion ~~h~~Hazard ~~a~~Areas shall be reviewed pursuant to the requirements set forth in EMC Title 15, Buildings and Construction. (Ord. 02-200 § 2).

14.110.050 ~~Buffer~~Buffer requirements.

A. Determining ~~Buffer~~Buffer Widths.

1. The ~~buffer~~Buffer width shall be measured on a horizontal plane from a perpendicular line established at the edge of the active shoreline ~~e~~Erosion ~~h~~Hazard ~~a~~Area limits.

2. An undisturbed ~~buffer~~Buffer of existing vegetation shall be required for an active shoreline ~~e~~Erosion ~~h~~Hazard ~~a~~Area. The required standard ~~buffer~~Buffer width is ~~either a or b below, whichever is the greater~~~~amount of the distances in EMC 14.110.050(A)(2)(a) and (b):~~

- a. Fifty feet from all edges of the active shoreline ~~e~~Erosion ~~h~~Hazard ~~a~~Area limits;
- b. A distance of one-third the height of the slope at the top of the slope and a distance of one-half the height at the bottom of the slope; or

~~3. e-~~The ~~buffer~~Buffer width may be reduced ~~below the widths specified in EMC 14.110.050(A)(2)(a) and (b)~~ or eliminated upon ~~the Director's~~ approval ~~by the Department~~ of a ~~g~~Geotechnical ~~r~~Report that demonstrates that such a reduction would not result in an increased risk of erosion either on or off of the subject property.

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B. Modification of ~~Buffer~~ Widths. The ~~department~~ may require a larger ~~buffer~~ width than the standard ~~buffer~~ distance, as determined in subsection (A) of this section, if any of the following are identified through the geological assessment process:

1. The adjacent land is susceptible to severe erosion and erosion control measures will not effectively prevent adverse impacts.
2. The area has a severe risk of slope failure or downslope stormwater drainage impacts. (Ord. 02-200 § 2).

14.110.060 Appendices.

A. Geological Assessment – Shoreline Erosion Hazard Geotechnical Letter.

B. Geological Assessment – Shoreline Erosion Hazard Geotechnical Verification.

C. Geological Assessment – Shoreline Erosion Hazard Geotechnical Report.

APPENDIX A

GEOLOGICAL ASSESSMENT – SHORELINE EROSION HAZARD GEOTECHNICAL LETTER

A. A geotechnical letter shall, at a minimum, include the following:

1. The general ~~e~~Critical ~~a~~Areas report requirements ~~in EMC 14.10.082~~.
2. A summary of the findings of the site visit, a site plan, and a summary of the findings from the review of documents listed in EMC 14.110.030 ~~B.2(B)(2)~~. The appropriate professional preparing the geotechnical letter shall provide conclusions and recommendations as to shoreline stability for the proposed development.

B. The ~~g~~Geotechnical ~~p~~Professional who prepared the geotechnical letter shall stamp the letter with his or her seal.

C. Hold harmless clauses, disclaimers, and limitations are not allowed within a geotechnical letter.

APPENDIX B

GEOLOGICAL ASSESSMENT – SHORELINE EROSION HAZARD GEOTECHNICAL VERIFICATION

A. A geotechnical verification shall, at a minimum, include the following:

1. The general ~~e~~Critical ~~a~~Areas report requirements ~~in EMC 14.10.082~~.
2. A summary of the results, conclusions, and recommendations resulting from the geological assessment, as set forth in EMC 14.110.030 ~~(B)~~. The verification will also include a summary of the findings of the site visit, a site plan, and a summary of the findings from the review of the documents listed in EMC 14.110.030 ~~B.2(B)(2)~~.
3. An accurate site plan drawn at a scale of one inch equals 20 feet, one inch equals 30 feet, one inch equals 50 feet (or other scale deemed appropriate by the ~~department~~) is required. The ~~department~~ may require that the site plan information listed below be based on a field survey by a licensed surveyor. The site plan shall include:
 - a. The limits ~~and~~ location of the active shoreline ~~e~~Erosion ~~h~~Hazard ~~a~~Area(s) ~~set forth in EMC 14.110.020(B)(2)~~.
 - b. The limits of the required shoreline erosion hazard ~~buffer~~ ~~based upon the requirements set forth in EMC 14.110.050(A)~~.
 - c. The limits ~~and~~ location of the shoreline erosion hazard management area.
 - d. The limits ~~and~~ location of the 120-year regression area.

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- e. The location of any existing structures, utilities, on-site septic systems, wells, and stormwater management facilities.
- f. The location of any proposed structures, utilities, on-site septic systems, wells, and stormwater management facilities.
- g. The full geographical limits of the proposed project area ~~(area to be developed)~~.
- h. Dimension of the closest distance between the identified active shoreline hazard area boundary and the proposed project area.
- i. Dimension of the closest distance between the 120-year regression line and the proposed project area.
- j. Existing contours on the site at two-foot intervals.
- k. Property lines for the site.
- l. North arrow and scale.

B. The ~~g~~Geotechnical ~~p~~Professional who prepared the geotechnical verification shall stamp the verification with ~~his or her~~their seal.

C. Hold harmless clauses, disclaimers, and limitations are not allowed within a geotechnical verification.

APPENDIX C

GEOLOGICAL ASSESSMENT – SHORELINE EROSION HAZARD GEOTECHNICAL REPORT

A. A ~~g~~Geotechnical ~~r~~Report shall, at a minimum, include the following:

1. The general ~~e~~Critical ~~a~~Areas report requirements ~~in EMC 14.10.082~~.
2. A summary of the results, conclusions, and recommendations resulting from the geological assessment, ~~as set forth in EMC 14.110.030(B)~~. The report will also include a summary of the findings of the site visit, a site plan, and a summary of the findings from the review of documents listed in EMC 14.110.030 ~~B.2(B)(2)~~. The summary shall specifically address:
 - a. Whether it is possible given the physical constraints of the property (size, shape, building setbacks, utility requirements, etc.) to locate the proposed development outside of the 120-year area of regression based on natural shoreline processes.
 - b. If it is not possible to locate the development outside of the 120-year area of regression (based on natural processes), determine whether beach nourishment, ~~and/or s~~Soft a~~Ar~~rmoring t~~Techniques, or both~~ can be used to slow the rate of regression such that the proposed development is no longer within the 120-year regression area.
 - c. If it is not possible to locate the development outside of the 120-year area of regression, ~~(based on the use of beach nourishment and/or s~~Soft a~~Ar~~rmoring t~~Techniques)~~, outline the strategy, ~~as set forth in EMC 14.110.040(A)(1)~~, to monitor the rate of regression on the site.
 - d. Determine whether any proposed shoreline erosion protection measures will cause an increase in the rate of regression on neighboring properties.
3. An accurate site plan drawn at a scale of one inch equals 20 feet, one inch equals 30 feet, one inch equals 50 feet (or other scale deemed appropriate by the ~~department~~Department) is required. The ~~department~~Department may require that the site plan information listed below be based on a field survey by a licensed surveyor. The site plan shall include:

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- a. The limits ~~and~~/ location of the active shoreline ~~e~~Erosion ~~h~~Hazard ~~a~~Area(s) ~~set forth in EMC 14.110.020(B)(2).~~
- b. The limits of the required shoreline erosion hazard ~~buffer~~Buffer based upon the requirements ~~set forth in EMC 14.110.050(A).~~
- c. The limits ~~and~~/ location of the shoreline erosion hazard management area.
- d. The limits ~~and~~/ location of the 120-year regression area based on natural shoreline processes and, if applicable, based upon proposed shoreline protection measures.
- e. The location of any existing structures, utilities, on-site septic systems, wells, and stormwater management facilities.
- f. The location of any proposed structures, utilities, on-site septic systems, wells, and stormwater management facilities.
- g. The full geographical limits of the proposed project area ~~(area to be developed).~~
- h. Dimension of the closest distance between the identified active shoreline hazard area boundary and the proposed project area.
- i. Dimension of the closest distance between the 120-year regression line and the proposed project area.
- j. Existing contours on the site at two-foot intervals.
- k. Property lines for the site.
- l. North arrow and scale.

4. A discussion of any proposed shoreline protection measures including design and construction drawings is required.

5. A list of references utilized in preparation of the report.

B. The ~~g~~Geotechnical ~~p~~Professional(s) who performed the geological assessment shall stamp the report with ~~his or her~~their license stamp ~~or~~ /seal. The report must be co-authored by a licensed professional ~~e~~Engineer when engineering designs or interpretations are necessary to address the report requirements. The ~~e~~Engineer must also stamp the report with ~~his or her~~their license stamp ~~or~~ /seal.

C. The ~~department~~Department may request a ~~g~~Geotechnical ~~p~~Professional to provide additional information in the ~~g~~Geotechnical ~~r~~Report based upon existing conditions, changed conditions, or unique circumstances occurring on a case-by-case basis.

D. Hold harmless clauses, disclaimers, and limitations are not allowed within a ~~g~~Geotechnical ~~r~~Report.

E. Geotechnical ~~r~~Reports shall be in conformance with a format that is pre-approved by the ~~department~~Department. (Ord. 02-200 § 2).

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Chapter 14.50120**NATURAL RESOURCE LANDS**

Sections:

- 14.50120.010 Purpose.
- 14.50120.020 Intent.
- 14.50120.030 Applicability.
- 14.50120.04031 Mineral ~~r~~Resource ~~H~~ands designation.
- 14.50120.0450 Natural ~~r~~Resource ~~H~~ands noticing requirements.
- 14.50120.0560 Current use assessment.
- 14.50120.0670 Variances and appeals.
- 14.50120.0780 Review process.
- 14.50120.0890 Title, plat, and ~~r~~Regulated ~~a~~Aactivities notification.
- 14.50120.1090 Permitted uses.
- 14.50120.1100 Appendices.

14.50120.010 Purpose.

This chapter establishes requirements and regulations to protect ~~a~~Natural ~~r~~Resource ~~H~~ands and is established pursuant to WAC 197-11-908 and RCW 36.70A.170 and 36.70A.060. The ~~e~~City therefore designates ~~a~~Agricultural ~~H~~ands and ~~m~~Mineral ~~r~~Resource ~~H~~ands, and all associated ~~buffer~~Buffers as being ~~environmentally sensitive~~ ~~Critical~~ ~~a~~Areas and designated ~~a~~Natural ~~r~~Resource ~~H~~ands. By regulating development within 500 feet of ~~a~~Natural ~~r~~Resource ~~H~~ands, this title seeks to implement the following goals and policies to:

- A. Inform the public of the existence, location and potential incompatibility impacts of development on, or within 500 feet of, these ~~environmentally sensitive~~ ~~Critical~~ ~~a~~Areas within the city.
- B. Encourage the retention of open space, development of recreational opportunities, conserve priority habitat, increase access to ~~a~~Natural ~~r~~Resource ~~H~~ands and water, and develop parks.
- C. Assure the conservation of resource lands and related activities by limiting encroachment of incompatible development thereon.
- D. Promote the conservation of ~~m~~Mineral ~~r~~Resource ~~H~~ands through inclusion of known deposits of minerals and materials.
- E. Assure that undeveloped mineral and material resources will not be forever lost by prior development of the land for other purposes.
- F. Allow for the necessary mineral processing to convert such minerals and materials into marketable products.
- G. Protect the environment and enhance the state's high quality of life, including air and water quality and the availability of water.
- H. Maintain and enhance the biological and physical functions and values of ~~wetland~~Wetlands. (Ord. 02-200 § 2).

14.500120.020 Intent.

Resource lands are of special concern to the citizens, the ~~e~~ityCity, and the state. The intent of this chapter is to conserve resource lands by establishing standards for development of sites which contain, or are within 500 feet of, resource lands to promote the public health, safety, and welfare by:

- A. Noticing of property on, or within, natural resource land areas;
- B. Mitigating unavoidable impacts by regulating development;
- C. Protecting from development impacts;

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D. Protecting the public against losses from:

1. Costs of public emergency rescue and relief operations where the causes are avoidable;
2. Degradation of the natural environment and the expense associated with repair or replacement;

E. Preventing adverse impacts on water availability, water quality, ~~wetland~~Wetlands, and streams;

F. Protecting unique, fragile, and valuable elements of the environment, including fish and wildlife habitat;

G. Providing sufficient information to show that ~~eCritical a~~Areas are adequately protected prior to approving, conditioning, or denying public or private development activity;H. Providing the public with sufficient information and notice of potential risks associated with development in ~~any eCritical Area or and s~~Sensitive ~~a~~Areas;I. Implementing the goals and requirements of the Growth Management Act (RCW 36.70A.060), the ~~city of Edgewood City's~~ comprehensive plan, and all updates and amendments, functional plans, and other land use policies formally adopted or accepted by the ~~city~~City. (Ord. 02-200 § 2).**~~14.500~~120.030 Applicability.**

This chapter shall apply to all properties designated as resource lands, ~~(aAgricultural lLands, or mMineral rResource lLands,)~~ or properties within 500 feet of designated resource lands within Edgewood. When the requirements of this title are more stringent than those of other local, state, or federal law, codes, or regulations, the requirements of this title shall apply.

A. Agricultural Lands. Lands that are not already characterized by ~~uUrban g~~Growth and that have long-term significance for the commercial production of food or other agricultural products. Agricultural ~~lL~~ands are those lands meeting all of the following criteria:

1. Lands in parcels which are 10 acres or larger in size;
2. Lands which are on prime or unique soils as identified in:
 - a. United States Department of Agriculture (USDA), Soil Conservation Service, February 1979, Soil Survey of Pierce County Area, Washington; or
 - b. USDA, Soil Conservation Service, June 1981, Important Farmlands of Pierce County, Washington;
 - c. Lands which are primarily devoted to the commercial production of horticultural, viticultural, floricultural, dairy, apiary, vegetable, or animal products or of berries, grain, hay, straw, turf, seed, Christmas trees not subject to the excise tax imposed by RCW 84.33.100 through 84.33.140, or livestock, and which have ~~lLong-tTerm eC~~ommercial ~~sS~~ignificance for agricultural production; and
 - d. Lands which are not within 500 feet of lots of record of one acre or less on more than 50 percent of the perimeter of the parcel.

B. Mineral Resource Lands. Mineral ~~rResource lL~~ands shall be identified by the ~~city~~City using the criteria set forth in WAC 365-190-070 as now exists or as may hereafter be amended or modified.C. Property Adjacent to Resource Lands. All plats, short plats, development permits, and building permits issued for development activities within 500 feet of lands designated as ~~nNatural rResource lL~~ands shall contain a notice that a variety of commercial activities may occur that are not compatible with residential development for certain periods of limited duration. (Ord. 04-221 § 1; Ord. 02-200 § 2).**~~14.500~~120.031040 Mineral ~~rResource lL~~ands designation.**A. The ~~city~~City has classified the following areas as potential ~~mMineral rResource lL~~ands ~~based on the criteria in EMC 14.500.030(B).~~

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1. Parcels: 0420164023, 0420164024, 0420164016 (commonly known as Olson); and
2. Parcels: 0420162047, 0420162048 (commonly known as Josties); and
3. Parcels: 0420084072, 0420084002, 0420084005, 0420084069, 0420084068, 0420171073, 0420171057, 0420171000, 0420171059 (commonly known as Fife Sand and Gravel).

B. The ~~city~~City staff shall study each area and prepare a written analysis of each area.

~~C. The city council's land use and economic development committee shall review the staff analysis and either send the analysis back to staff for clarification or recommend approval/denial of each area as a mineral resource land to the city council. The staff analysis and land use and economic development committee's recommendation shall be forwarded to the city council for review and action.~~

~~DC.~~ The eCity eCouncil shall review the staff analysis and recommendation(s) ~~of the land use committee~~ and shall, by ordinance, approve, deny, or modify the particular study area designation using the criteria in EMC Section 14.500120.0560(B). (Ord. 04-234 § 1).

14.500120.040050 Natural rResource Hlands noticing requirements.

Pursuant to RCW 36.70A.060, the ~~city~~City shall require that all plats, ~~d~~Development aApplications, or permits issued for development activities on, abutting, or within 500 feet of lands designated as ~~n~~Natural rResource Hlands contain a notice (see Appendices A through C).

A. General. If more than one natural resource land subject to the provisions of this title intersects the subject parcel, then one notice addressing all of the natural resource areas shall be sufficient.

B. Title Notification.

1. When the ~~city~~City determines that activities not exempt from this title are proposed, the owner shall file a notice with the Pierce County auditor in accordance with (Appendices A through C of this Chapter). The notice shall provide a public record of the presence of ~~the any s~~Sensitive aArea(s); the application of this title to the property; and any limitations on activity in or affecting such ~~s~~Sensitive aArea.
2. The notice shall be notarized and recorded with the Pierce County auditor before approval of any regulated use or activity on the site.

C. Plat Notification. For all proposals requiring a plat within any sSensitive aAreas, the applicant shall note the face of the plat consistent with the language set forth in Appendices A through C of this Chapter.

D. Permit Notification. The ~~department~~Department shall require that all permits issued for ~~r~~Regulated aActivities on or within 500 feet of ~~n~~Natural rResource Hlands contain a notice as set forth in Appendices A through C. (Ord. 02-200 § 2).

14.500120.050060 Current use assessment.

A. An owner of ~~n~~Natural rResource Hlands or open space desiring current use ~~e~~Classification under Chapter 84.40 RCW may file for such current use ~~e~~Classification.

B. An owner of undeveloped land with ~~e~~Critical aAreas which has been placed in a separate tract or tracts, protective easement, public or private land trust dedication, or other similarly preserved area for the protection of these ~~e~~Critical aAreas may have that portion of land reviewed for reassessment by the assessor-treasurer's office consistent with those restrictions to determine the fair market value of the land pursuant to RCW 84.40.030.

C. The owner shall notify the assessor-treasurer's office when restrictions on development occur on a particular site, and shall provide a plat map in addition to the following, or other special study documents as may be required by the ~~department~~Department.

~~Chapter 14.500~~ NATURAL RESOURCE LANDS**14.500120.0670 Variances and appeals.**

Procedures for variances and appeals of an administrative decision issued pursuant to this chapter are set forth in EMC 18.40.090, ~~Process II, Administrative action.~~ (Ord. 02-200 § 2).

14.500120.0780 Review process.

A. The ~~d~~Department shall review any permit or ~~a~~Application requested for any regulated activity, including, but not limited to, those set forth in EMC ~~Chapter 14.500.049~~ on a site which includes, or is within 500 feet of, one or more resource land is located, unless otherwise provided in this title.

B. As part of all development ~~a~~Applications, the ~~department~~Department shall review the information submitted by the applicant to:

1. Confirm the nature and type of the resource land and evaluate any required title, plat, and/or regulated activity notification;
2. Determine whether the development proposal is consistent with this title; and
3. Determine whether any proposed alterations to the site containing resource lands are necessary.

C. The ~~city~~City may approve, approve with conditions, or deny any development proposal in order to comply with the requirements and carry out the goals, purposes, objectives, and requirements of this title.

D. Approval of a development proposal does not discharge the obligation of the applicant to comply with the provisions of this title. (Ord. 02-200 § 2).

14.500120.0890 Title, plat, and ~~r~~Regulated ~~a~~Activities notification.

A. If more than one resource land subject to the provisions of this title exists on the site, then one notice addressing all of the resource lands shall be sufficient.

B. Notification shall be approved by the ~~department~~Department and shall be consistent with the forms set forth in EMC 14.500120.11000, Appendices A through C, as applicable.

C. Title notifications shall be notarized and recorded with the Pierce County auditor prior to approval of any regulated use or activity for the site. (Ord. 02-200 § 2).

14.500120.090100 Permitted uses.

Uses permitted on designated resource land sites shall be the same as those permitted in the zone ~~e~~Classifications shown on the ~~city~~City zoning map. (Ord. 02-200 § 2).

14.500120.1100 Appendices.

A. Property Adjacent to Resource Lands.

B. Agriculture Lands Noticing.

C. Mineral Resource Lands Noticing.

APPENDIX A

PROPERTY ADJACENT TO RESOURCE LANDS

A. Title Notification.

Parcel Number: _____

Site Address: _____

NOTICE: This parcel lies within 500 feet of land designated resource lands by Edgewood. A variety of commercial and industrial activities occur in the area that may be inconvenient or

~~Chapter 14.500~~ NATURAL RESOURCE LANDS

cause discomfort to area residents. This may arise from the use of chemicals, or from spraying or extraction which occasionally generates dust, smoke, noise, and odor. The ~~city~~City has established resource uses as priority uses on productive resource lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary commercial resource lands operations.

Signature of Owner

(NOTARY ACKNOWLEDGMENT)

B. Plat Notification. The owner of any site within 500 feet of land designated as resource lands on which a large lot, short subdivision, or formal subdivision is submitted, shall record a notice on the face of the plat. Such notification shall be in the form as set forth below:

PROPERTY ADJACENT TO RESOURCE LANDS PLAT NOTIFICATION. This property lies within 500 feet of land designated resource lands by Edgewood. A variety of commercial and industrial activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of chemicals, or from spraying or extraction which occasionally generates dust, smoke, noise, and odor. The ~~city~~City has established resource uses as priority uses on productive resource lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary commercial resource lands operations.

C. Regulated Activities Notification. The ~~department~~Department shall require that permits issued for regulated activities, as defined in ~~EMC~~ Chapter 14.120500-EMC, within 500 feet of lands designated as resource lands, contain a notice as set forth below.

REGULATED ACTIVITIES NOTIFICATION. This property lies within 500 feet of land designated resource lands by Edgewood. A variety of commercial and industrial activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of chemicals, or from spraying or extraction which occasionally generates dust, smoke, noise, and odor. The ~~city~~City has established resource uses as priority uses on productive resource lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary commercial resource lands operations.

APPENDIX B

AGRICULTURAL LANDS NOTICING

A. Title Notification.

Parcel Number: _____

Site Address: _____

NOTICE: This parcel lies within 500 feet of an area identified as ~~a~~Agricultural ~~L~~ands by Edgewood. A variety of commercial ~~a~~Agricultural ~~a~~Activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of agricultural chemicals, including herbicides, pesticides, and fertilizers; or from spraying, pruning, and harvesting which occasionally generate dust, smoke, noise, and odor. Edgewood has established agriculture as a priority use on productive ~~a~~Agricultural ~~L~~ands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary farm operations.

~~Chapter 14.500 NATURAL RESOURCE LANDS~~Signature of Owner
_____Signature of Owner
_____(NOTARY ACKNOWLEDGMENT)

B. Plat Notification. The owner of any site within this designation on which a large lot, short subdivision, or formal subdivision is submitted, shall record a notice on the face of the plat. Such notification shall be in the form as set forth below.

AGRICULTURAL LANDS PLAT NOTIFICATION. This parcel lies within an area identified as ~~a~~Agricultural ~~H~~Lands by Edgewood. A variety of commercial ~~a~~Agricultural ~~a~~Activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of agricultural chemicals, including herbicides, pesticides, and fertilizers; or from spraying, pruning, and harvesting which occasionally generate dust, smoke, noise, and odor. The ~~e~~ityCity has established agriculture as a priority use on productive ~~a~~Agricultural ~~H~~Lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary farm operations.

C. Regulated Activities Notification. The ~~department~~Department shall require that all permits issued for regulated activities, as defined in ~~EMC~~ Chapter 14.120500 ~~EMC~~, within this zone ~~e~~Classification contain a notice as set forth below.

REGULATED ACTIVITIES NOTIFICATION. This parcel lies within 500 feet of an area identified as ~~a~~Agricultural ~~H~~Lands by Edgewood. A variety of commercial ~~a~~Agricultural ~~a~~Activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of agricultural chemicals, including herbicides, pesticides, and fertilizers; or from spraying, pruning, and harvesting which occasionally generate dust, smoke, noise, and odor. The ~~e~~ityCity has established agriculture as a priority use on productive ~~a~~Agricultural ~~H~~Lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary farm operations.

APPENDIX C

MINERAL RESOURCE LANDS NOTICING

A. Title Notification.

Parcel Number: _____

Site Address: _____

NOTICE: This parcel lies within 500 feet of an area of land designated mineral resource lands by the ~~e~~ityCity. A variety of commercial mineral extraction activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of heavy equipment, chemicals, and spraying which may generate dust, smoke, and noise associated with the extraction of mineral resources. Edgewood has established mineral resource extraction as a priority use on productive mineral resource lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary mineral resource extraction operations.

Signature of Owner

(NOTARY ACKNOWLEDGMENT)

B. Plat Notification. The owner of any site within this overlay district on which a large lot, short subdivision, or formal subdivision is submitted, shall record a notice on the face of the plat. Such notification shall be in the form as set forth below:

MINERAL RESOURCE LANDS PLAT NOTIFICATION. This property lies within 500 feet of an area of land designated mineral resource lands by the ~~city~~City of Edgewood. A variety of mineral resource extraction activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of heavy equipment, chemicals, and spraying which may generate dust, smoke, and noise associated with the extraction of mineral resources. Edgewood has established mineral resource extraction as a priority use on productive mineral resource lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary mineral resource extraction lands.

C. Regulated Activities Notification. The ~~department~~Department shall require that all permits issued for regulated activities, as defined in ~~EMC~~ Chapter 14.500~~120-EMC~~, within this designation contain a notice as set forth below:

REGULATED ACTIVITIES NOTIFICATION. This property lies within 500 feet of an area of land designated mineral resource lands by Edgewood. A variety of mineral resource extraction activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of chemicals and extraction of minerals, which occasionally generates dust, smoke, noise, and odor. The ~~city~~City has established mineral resource extraction as a priority use on productive mineral resource lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary mineral resource extraction lands.

(Ord. 02-200 § 2).

Title 14
CRITICAL AREAS

Chapters:

- 14.10 General Provisions**
- 14.20 Definitions**
- 14.30 Use and Activity Regulations**
- 14.40 Wetlands**
- 14.50 Critical Fish and Wildlife Habitat Areas**
- 14.60 Aquifer Recharge and Wellhead Protection Areas**
- 14.70 Volcanic Hazard Areas**
- 14.80 Flood Hazard Areas**
- 14.90 Landslide Hazard Areas**
- 14.100 Seismic (Earthquake) Hazard Areas**
- 14.110 Erosion Hazard Areas**
- 14.120 Natural Resource Lands**

Chapter 14.10
GENERAL PROVISIONS

Sections:

14.10.010	Authority.
14.10.020	Purpose.
14.10.030	Interpretation.
14.10.040	Applicability.
14.10.050	Administration.
14.10.060	Relationship to Other Regulations.
14.10.070	Critical Area protective measures.
14.10.080	Critical Areas Reports.
14.10.090	Mitigation plans.
14.10.100	Variances to Critical Areas.
14.10.110	Reconsideration and appeal procedures.
14.10.120	Fees.
14.10.130	Compliance.
14.10.140	Warning and disclaimer of liability.
14.10.150	Appendix.

14.10.010 Authority.

A. This title is established and adopted pursuant to the Growth Management Act (RCW 36.70A.060).

B. As provided herein, the Director or their designee is given the authority to interpret and apply, and the responsibility to enforce this title.

14.10.020 Purpose.

A. The purpose of this title is to protect the Critical Areas of Edgewood from the impacts of development by establishing minimum standards for Development Activity on sites that contain or adjoin any Critical Area or its Buffer(s). Further, the purpose of these regulations is to mitigate the potential hazard(s) to development in and near Critical Areas.

B. The purpose is further envisioned to promote the public health, safety, and welfare by:

1. Avoiding impacts to critical areas;
2. Mitigating unavoidable impacts by regulating development;
3. Protecting critical areas from impacts of development;
4. Protecting the public against losses from:
 - a. Costs of public emergency rescue and relief operations where the causes are avoidable; and
 - b. Degradation of the natural environment and the expense associated with repair or replacement;
5. Preventing adverse impacts on water availability, water quality, Wetlands, and streams;
6. Protecting unique, fragile, and valuable elements of the environment, including critical Fish and Wildlife Habitat Conservation Areas;
7. Providing Department staff with sufficient information to adequately protect Critical Areas and proposed Development Activity when approving, conditioning, or denying public or private Development proposals;

8. Providing the public with sufficient information and notice of potential risks associated with Development in Critical Areas; and

9. Implementing the goals and requirements of the Growth Management Act (RCW 36.70A.060), the State Environmental Policy Act (SEPA), the City's comprehensive plan, and all updates, amendments, functional plans, and other land use policies formally adopted or accepted by the City.

14.10.030 Interpretation.

A. In the interpretation and application of this title, all provisions shall be:

1. Considered the minimum necessary for compliance; and
2. Liberally construed to serve the purposes of this title.

B. Nothing contained herein shall be deemed to limit or repeal any other powers under state statute.

14.10.040 Applicability.

A. This title shall apply to all lands and waters within Edgewood that are designated as Critical Areas and their corresponding Buffers and setbacks.

B. No Development Activity shall hereafter take place without full compliance of this title.

C. When the requirements of this title are more stringent than those of other City codes and regulations, the requirements of this title shall apply.

D. Compliance with these regulations does not remove an applicant's obligation to comply with applicable provisions of any other federal, state, or local law or regulation.

E. Criteria for determining the presence of a Critical Area is contained within each chapter of this title.

F. When a site contains two or more Critical Areas, the site shall meet the minimum standards and requirements for each.

G. Critical Areas are identified on, but may not be limited to, the following maps:

1. Wetlands;
2. Geologically Hazardous Areas;
3. Critical Aquifer Recharge Areas;
4. Streams; and
5. Frequently Flooded Areas.

H. The boundary of each mapped Critical Area is approximate and is only intended to provide an indication of the presence of a Critical Area on a particular site. Additional Critical Areas that have not been mapped may also be present on a site. The actual presence of a Critical Area and the applicability of these regulations shall be determined based upon the Classification or categorization criteria and review procedures established for each Critical Area. City staff or the City's consultant(s) may request the ability to perform an on-site inspection to assess the site in order to advise if additional studies or reports shall be included with any Development Application.

I. Critical Area maps shall be updated and maintained by the Department.

14.10.050 Administration.

A. Critical Areas Permit or Approval Required. In order to conduct any Development Activity on any property located within three hundred (300) feet of a Critical Area, as each Critical Area is defined in this Title or as shown on the City's Critical Areas Map(s), a Critical Areas Permit or an Approval must be obtained from the City.

B. Critical Areas Approval.

1. If the City requires that another permit application be submitted under a different code chapter in order to allow the proposed Development Activity, then a separate Critical Areas Permit is not required. Instead, the City shall review the underlying application, together with the application materials required in herein, to determine compliance or noncompliance with this title. The determination on such compliance or noncompliance shall be incorporated within the decision on the underlying application.
2. In addition to the materials required to make the underlying application complete as required by the City's code outside of this Title, the applicant shall also submit the materials set forth in herein, where the subject property is within three hundred (300) feet of a Critical Area. The City shall not issue a determination that the underlying application is complete until all materials have been submitted.
3. The process for review of the underlying application and Critical Areas approval shall be the same as the Process to be followed for the underlying application.

C. Critical Areas Permit.

1. If the City does not require any other permit in order to allow the proposed Development Activity, the applicant shall be required to obtain a separate Critical Areas Permit in order for the proposed development activity to proceed.
2. A complete application for a Critical Areas Permit shall consist of the materials set forth in EMC Section 14.10.050.D.
3. The process for review of a Critical Area Permit is the Type II Process, as set forth within EMC Section 18.40.090.

D. Elements of a Complete Permit Application. A complete application for Approval or a Critical Areas Permit under this Title shall consist of the following materials:

1. A completed permit and approval application form, which must be signed by the record owner of the property (the person(s) whose name is on the most recently recorded deed or contract purchaser with written permission from the record owner). An application form may be signed by an agent for the record owner, as long as the application is also accompanied by a verified statement signed by the record owner, which specifically authorizes the agent to submit the application on the record owner's behalf.
2. The subject site's street address, legal description, or both items if necessary for property identification;
3. A complete description of the proposed development activity;
4. All items identified in this title that are necessary to complete the application; and
5. The required application fee.
 - a. Permit Requirements. No separate application or permit is required to conduct regulated activities within a Critical Area or its associated buffer. Review of regulated activities within a critical area and related buffers is subject to the permit processing procedure for the required permit type as defined under EMC 18.40.

E. Critical Areas reports shall not be submitted without an accompanying permit Application for an underlying action, such as, but not limited to, a building permit, subdivision or boundary alteration action, site development, TPCHD permit, or use permit, with the exception of Applications required by the Department as a result of an

enforcement action, reports required by TPCHD for septic design approval, or associated with a request under the Pierce County Open Space public benefit rating system tax program.

F. Modifications. The Department may request an update of any required assessment, report, or Delineation due to the potential for change in the existing environment that may have been caused by a natural event, e.g., seismic event, landslides, or flooding or human induced activity that Degraded the existing conditions after the original document was submitted.

G. Public Notice. Public notice provisions for notice of Application; public hearing, if applicable; and final decision pursuant to this title are outlined in EMC Section 18.40.190, Notice of public hearing.

H. Review.

1. Initial Review. The Department shall conduct an initial review of any Application in accordance with the provisions outlined in EMC Section 18.40.150, Determination of Completeness.

2. Review Responsibilities.

a. The Department is responsible for administration, circulation, and review of any Applications and approvals required by this title.

b. Any Reasonable Use Exception Applications shall follow EMC Section 14.20.050.

c. Other City or Pierce County departments and state agencies, as determined by the Department, may review an Application and forward their respective recommendations to the Director or Hearing Examiner, as appropriate.

3. Review Process.

a. The Department shall perform a Critical Area review for any building or land use Application submitted for a regulated activity, including, but not limited to, those set forth in EMC Section 14.30.020, and any non-exempt activity. Reviews for multiple Critical Areas shall occur concurrently.

b. The Department shall, to the extent reasonable, consolidate the processing of related aspects of other City regulatory programs which affect activities in any regulated Critical Area.

c. As part of the initial review of all related permit Applications, the Department shall review the information to:

i. Confirm the nature and type of the Critical Area and evaluate whether any assessments, reports, or studies are required;

ii. Determine whether the development proposal is consistent with this title;

iii. Determine whether any proposed alterations to the site containing Critical Areas are necessary; and

iv. Determine if the mitigation and monitoring plans submitted by the applicant are sufficient to protect the public health, safety, and welfare consistent with the goals, purposes, objectives, and requirements of this title.

d. Regulated Activities subject to SEPA shall also be reviewed with consideration for impacts on Critical Areas as identified in this title. Regulated Activities that pose a significant adverse impact which are not addressed by the standards and criteria established in this title, may be subject to additional mitigation measures as determined through the SEPA process. A threshold determination issued pursuant to EMC Title 20 - SEPA, may not be made prior to the

Department's review of any special studies or technical reports required by this title, except where the applicant requests a declaration of significance so that environmental review is required.

e. Critical Areas Applications required under this title shall be approved prior to approval of any underlying permit action.

f. The Department may waive the requirement to submit a Critical Area Report when the proposed project area for a regulated activity is located in an area that has been the subject of a previously submitted and approved assessment or report, if all of the following conditions have been met:

- i. The provisions of this title have been previously addressed as part of another approval;
- ii. There has been no material change in the potential impact to the Critical Area or required Buffer since the prior review;
- iii. There is no new information available that is applicable to any critical review of the site or particular Critical Area;
- iv. The permit or approval has not expired or, if there is no expiration date, no more than five years have elapsed since the issuance of that permit or approval; and
- v. Compliance with any standards or conditions placed upon the prior permit or approval has been achieved or secured.

4. Burden of Proof. The applicant has the burden of proving that a proposed Application complies with the standards set forth in this title.

5. Final Decision.

a. The Department may approve, approve with conditions, or deny any Critical Areas Applications or underlying Applications for development within any Critical Area . Approval of a development proposal does not discharge the obligation of the applicant to comply with the provisions of this title.

b. Applicants shall comply with the recommendations or mitigation measures contained in final approved assessments or reports and any final decision and conditions of approval.

c. Approval of an Application required under this title must be given prior to the start of any development activity on a site.

6. Time Period for Final Decision. The provisions for issuing a notice of final decision on any Application filed pursuant to this title is set forth in EMC Section 18.40.040, Coordination of development permit procedures.

E. Time Limitations.

1. Expiration of Approval.

a. Approvals granted under this title shall be valid for the same time period as the underlying permit. If the underlying permit does not contain a specified expiration date, then approvals granted under this title shall be valid for a period of three (3) years from the date of issue, unless a longer or shorter period is specified in the final decision.

b. The approval shall be considered null and void upon expiration, unless a time extension is requested and granted as set forth in EMC Section 14.10.050.E.2.

2. Time Extensions.

- a. The applicant or owner(s) may request in writing a one-time, one-year extension of the original approval. To receive the extension, the applicant must demonstrate that circumstances beyond their control dictated the need for the extension. The extension would set a new expiration date one year later than the initial expiration.
- b. Knowledge of the expiration date and initiation of a request for a time extension is the responsibility of the applicant or owner(s).
- c. A written request for a time extension shall be filed with the Department at least sixty (60) days prior to the expiration of the approval.
- d. Upon filing of a written request for a time extension, a copy shall be sent to each party of record together with governmental departments or agencies that were involved in the original approval process. By letter, the Department shall request written comments be delivered to the Department within 30 days of the date of the letter.
- e. Prior to the granting of a time extension, the Department may require a new Application(s), updated study(ies), and fee(s) if:
 - i. The original intent of the approval is altered or enlarged by the renewal;
 - ii. The circumstances relevant to the review and issuance of the original approval have changed substantially; or
 - iii. The applicant failed to abide by the terms of the original approval.

F. Recording.

1. Approvals.

- a. Approvals to modify a Critical Area or which otherwise require mitigation and or monitoring shall be recorded on the title of the project parcel(s) at the Pierce County auditor's office by City of Edgewood Staff prior to issuance of any permit authorizing the project to proceed and at the sole expense of Applicant.
- b. EMC Section 14.10.070.F, Title and Land Division Notification contains additional recording requirements.
- c. Work within a recorded, existing utility easement is not required to meet EMC Section 14.10.050.F.1.a.

2. Right of Entry.

- a. When an Application has been submitted, the City shall have a right of entry to verify the submitted information is correct; to ensure any applicable condition(s) of approval were satisfied; to confirm any required monitoring is being performed; or to attest that all outstanding items subject to a performance bond were completed.
- b. The right of entry shall extend until the last condition in the permit has been satisfied.

14.10.060 Relationship to Other Regulations

A. This title shall apply in addition to zoning and other regulations adopted by the City and concurrently with review conducted under SEPA.

B. Compliance with the provisions of this title does not constitute compliance with other federal, state, and local regulations and permit requirements that may be required. The applicant is responsible for complying with all other requirements, apart from the process established in this title.

C. Regulated Activities that may impact Critical Areas or their Buffers, but do not require any other City permits or approvals, may be reviewed as a Critical Areas Permit.

14.10.070 Critical Area protective measures.

A. General. All Critical Area tracts, Conservation Easements, land trust dedications, and other similarly preserved areas shall remain undeveloped in perpetuity, except as they may be allowed to be altered pursuant to this title.

1. Conservation Easements and other similarly preserved areas restrict both the current use as well as future uses of the land to some important conservation quality such as habitat preservation, open space, or scenic views.
2. A land trust or governmental entity that manages properties for long-term goals typically holds the Conservation Easement or other similarly preserved area.

B. Mitigation Sequence. Adverse impacts caused by new activities and developments shall be mitigated using the following action(s) in order of priority:

1. Avoiding the impact altogether by not taking a certain action or parts of an action;
2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps, such as project redesign, relocation, or timing, to avoid or reduce impacts;
3. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
4. Reducing or eliminating the impact over time by preservation and maintenance operations;
5. Compensating for the impact by replacing, enhancing, or providing substitute resources or environments;
and
6. Monitoring the impact and the compensation project and taking appropriate corrective measures.

C. Identification of Critical Areas and Required Buffers on Construction Plans. Critical Areas and required Buffers shall be clearly identified on all construction plans.

D. Building Setbacks.

1. Unless otherwise provided in this title, buildings and other structures shall be set back a distance of 15 feet from the edge of all Critical Area Buffers or, where no Buffers are required, the edge of the Critical Area.
2. The following uses and activities may be allowed in the building setback area:
 - a. Landscaping;
 - b. Uncovered decks;
 - c. Building overhangs extending 18 inches or less into the setback area;

d. Impervious ground surfaces, such as driveways, parking lots, roads, walkways, and patios; provided, that such improvements conform to the water quality standards set forth in the city's adopted stormwater management manual and that construction equipment does not enter the Buffer during the construction process;

e. Clearing and Grading; or

f. Any combination of items a-e. (Ord. 02-200 § 2).

3. All other uses and activities not listed in EMC Section 14.10.070.D.2.a-e are prohibited.

E. Financial Guarantees.

1. The City may require an applicant to submit one or more financial guarantees, e.g., surety bond, cash escrow, cash set aside, assignment of funds, or letter of credit, to guarantee any performance, mitigation, maintenance, or monitoring required as a condition of permit approval. The approval for the project will not be granted until the financial guarantee is received by the Department. Projects where the City or one of its departments is the applicant shall not be required to post a financial guarantee.

2. Financial guarantee instruments required under this title shall be:

a. In addition to any other site development guarantees required for project approval;

b. Submitted on financial guarantee forms approved by the city;

c. In the amount of 125 percent of the City Engineer's estimate of the cost of mitigation or monitoring to allow for inflation and administration should the city have to complete the mitigation or monitoring; and

d. Released by the City only when the applicant's appropriate technical professional has provided written confirmation that the performance, mitigation, or monitoring requirements have been met and the Department or its agent inspected the site(s) for compliance.

3. Failure to complete any performance, mitigation, or monitoring may result in the forfeiture or release of the guarantee. Applicants who have previously defaulted will no longer be allowed to post a bond guarantee for improvements necessary for approval of a land use Application. Applicants who have previously defaulted will be allowed to post cash guarantees for subsequent Critical Area Mitigation work needed for approval of a land use Application or permit, but the guarantee must be by cash guarantee only.

F. Title and Land Division Notification.

1. General.

a. Title or land division notice(s) shall be required to be recorded with the Pierce County auditor on each site that contains a Critical Area, at the time of approval of any regulated activity on a site.

b. If more than one Critical Area subject to the provisions of this title exists on the site, then one notice which addresses all of the Critical Areas may be sufficient.

c. Title or land division notifications and notes shall be approved by the Department and shall be consistent with EMC Section 14.10.170, Appendix A.

d. Applicant shall be responsible for the recording costs of the notice.

e. Notice on title is not required for utility line easements on lands not owned by the jurisdiction conducting the regulated activity, e.g., gas pipelines.

2. Land Division Notification and Notes. As referenced in EMC 14.10.170, Appendix A there shall be notes included on the face of any final plat, final binding site plan, short plat, or boundary line adjustment that contain any Critical Area or Buffers. The Critical Area boundaries and the boundary of any associated Buffers shall be identified on the face of these documents prior to submission to the City for approval.

G. Conservation Easements.

1. Prior to any final Critical Area approval, the part of the Critical Area and required Buffer which is located on the site shall be protected with a Conservation Easement or other similar permanent deed restriction.
2. The Conservation Easement shall indicate allowable and prohibited uses within the Critical Area and required Buffer.

H. Tracts. Critical Area tracts must adhere to the provisions in EMC Section 16.01.100 and the face of the plat shall include the requirement that the owners of all lots shall be required to preserve, protect, and maintain the Critical Areas.

I. Homeowner's Covenants.

1. A description of the Critical Area and required Buffer shall be placed in any required homeowner's covenants to provide notice to the homeowners of their responsibility to preserve, protect, and maintain the Critical Areas in perpetuity.
2. Such covenants shall contain a detailed description of the allowable uses within the Critical Area and, if applicable, associated Buffer and long-term management and maintenance requirements of the Critical Area.

Commented [JM1]: Need to update or remove 14.10.080(E) reference in 16.01.100.

J. Markers, Fencing, and Signage.

1. Markers.
 - a. Prior to final approval of any Critical Areas Application, the outer edge of the Critical Areas boundaries or required Buffer boundaries on the site shall be flagged by the qualified professional, as outlined in each chapter.
 - b. The boundaries shall then be identified with rebar and cap permanent markers and flagged by a licensed surveyor, unless otherwise stated in this title. The permanent markers shall be clearly visible, durable, and permanently affixed to the ground.
2. Fencing.
 - a. Temporary Construction Fencing.
 - i. Temporary fencing is required when vegetation is to be retained in an undisturbed condition within the Critical Area and required Buffer.
 - ii. When temporary fencing is required, the applicant shall construct silt fencing, construction fencing, or other City-approved method of temporary fencing at the edge of the Critical Area or the edge of the required Buffer prior to beginning construction on the site.
 - b. Permanent Fencing. Where deemed necessary by the Department to provide protection to the Critical Area, the applicant will be required to construct permanent, wildlife-passable fencing along the Buffer boundary.
3. Signage.

- a. The Department shall require permanent signage to be installed at the edge of the Critical Area or the edge of the required Buffer.
- b. The sign shall indicate the type of Critical Area and if the area is to remain in a natural condition as permanent open space.
- c. Exact sign locations, wording, size, and design specifications shall be established by the Department.
- d. Signage shall be clearly visible, durable, and permanently affixed to the ground.
- e. Prior to final approval of any Critical Area Application, the applicant shall submit an affidavit of posting to the Department as proof that the required signs were posted on the site.

14.10.080 Critical Areas Reports.

A. The applicant shall submit a Critical Areas report as required per this Title.

B. The Critical Areas report shall use scientifically valid methods and studies in the analysis of Critical Area data and field reconnaissance to evaluate the proposed development and all probable impacts to Critical Areas in accordance with the provisions of this title. The report shall reference the source(s) of science used in accordance with WAC 365-195-900 through WAC 365-195-925.

C. At a minimum the report shall contain the following ten (10) items:

1. The name and contact information of the applicant;
2. A description of the proposal;
3. The site plan for the proposed development, including a map drawn to scale depicting Critical Areas, Buffers, the proposed development, and any areas to be cleared or altered;
4. The date of the report and names and qualifications of the persons preparing the report;
5. Documentation of any fieldwork performed on the site;
6. Identification and characterization of all Critical Areas and Buffers on and adjacent to the proposed development;
7. A statement specifying the accuracy of the report, and all assumptions made and relied upon;
8. A discussion of the performance standards applicable to the Critical Area and proposed development;
9. A mitigation plan in accordance with EMC Section 14.10.090, if mitigation is required; and
10. Any additional report information required for the Critical Area as specified herein.

14.10.090 Mitigation plans.

A. When mitigation is required, the applicant shall submit a mitigation plan.

B. The mitigation plan shall include all of the following details outlined in paragraphs 1-6:

1. Mitigation sequencing. A description of reasonable efforts made to apply mitigation sequencing pursuant to EMC Section 14.10.070.B to avoid, minimize, and mitigate impacts to Critical Areas and Buffers.

2. Mitigation details.
 - a. A description of the anticipated impacts to the Critical Area and Buffer, including impacts to Critical Area functions and values;
 - b. The type of mitigation proposed, e.g., on-site or off-site; site selection criteria; identification of compensation goals; and identification of Critical Area functions.
 - c. The environmental goals and objectives of the mitigation, together with specific measurable criteria and performance standards for evaluating whether or not the goals and objectives of the mitigation project have been successfully attained;
 - d. A review of the Best Available Science supporting the proposed mitigation; and
 - e. An analysis of the likelihood of success of the mitigation project.
3. Construction details. The mitigation plan shall include written specifications, descriptions, and drawings of the mitigation proposed, including:
 - a. Construction sequence, timing, and duration;
 - b. Grading and excavation details;
 - c. Erosion and sediment control features; and
 - d. Planting plan specifying plant species, quantities, locations, size, spacing, density, and measures to protect and maintain plants until established. All plant species must be native to the region.
4. Monitoring details.
 - a. A program for monitoring construction and assessing the outcome of the mitigation project, including the schedule for site monitoring (for example, monitoring shall occur in year 1, 3, and 5 after site construction), and how the monitoring data will be evaluated to determine if the performance standards are being met. Monitoring reports shall be submitted to document milestones, successes, problems, and contingency actions of the compensation project. The mitigation project shall be monitored for a period necessary to establish that performance standards have been met, but not for a period less than five (5) years. Mitigation monitoring shall be the responsibility of the applicant.
 - b. A contingency plan with courses of action and corrective measures to be taken if monitoring or evaluation indicates project performance standards are not being met.
5. Mitigation Cost Estimate. A Mitigation Cost Estimate for the entire Compensatory Mitigation project, per the requirements of EMC Section 14.10.070.E.
6. Other requirements. The mitigation plan shall address any additional mitigation requirements relevant to the specific Critical Area as specified in the following chapters.

14.10.100 Variances to Critical Areas.

A. General. Variances are reviewed pursuant to the same permit process as a general variance, as outlined in EMC Chapter 18.40, and 18.50.080. The criteria for approval for a Critical Area Variances are contained herein, and are not subject to the criteria for general variances contained in EMC 18.50.080(D)(2) Conditions may be attached to any Critical Area variance, which will serve to meet the goals, objectives, and policies of this title.

B. Variance Criteria. A variance may be granted from the requirements of this chapter only if the decision maker makes written findings that the applicant has demonstrated that the requested action conforms to all of the criteria set forth as follows:

1. Special conditions and circumstances exist that are peculiar to the land, the lot, or something inherent in the land, and that are not applicable to other lands in the same district; and
2. The special conditions and circumstances do not result from the actions of the applicant; and
3. A literal interpretation of the provisions of this title would deprive the applicant of all reasonable economic uses and privileges permitted to other properties in the vicinity and zone of the subject property under the terms of this title, and the variance requested is the minimum necessary to provide the applicant with such rights; and
4. Granting the variance requested will not confer on the applicant any special privilege that is denied by this title to other lands, structures, or buildings under similar circumstances; and
5. The granting of the variance is consistent with the general purpose and intent of this title, and will not further degrade the functions or values of the associated Critical Areas or otherwise be materially detrimental to the public welfare or injurious to the property or improvements in the vicinity of the subject property; and
6. The decision to grant the variance incorporates the Best Available Science and gives special consideration to conservation or protection measures necessary to preserve or enhance anadromous fish habitat; and
7. The granting of the variance is consistent with the general purpose and intent of the Edgewood Comprehensive Plan and adopted development regulations.

C. Additional Criteria for Flood Hazard Area Variances. Refer to EMC Chapter 14.80 – Flood Hazard Areas for specific criteria. D. Should a variance be denied, the applicant may submit a Reasonable Use Exception Application.

14.10.110 Reconsideration and appeal procedures.

Procedures for appeal of a final decision on a Critical Areas permit, a decision relating to Critical Areas in the underlying permit, a Critical Areas variance, or a Critical Areas flood hazard variance are set forth in EMC Chapter 18.40.

14.10.120 Fees.

A. Fees for Applications or reviews of reports, studies, or plans filed pursuant to this title are set forth in the adopted fee schedule and as identified herein.

B. Fee Establishment. The City, by resolution, shall establish fees for filing of Critical Area review processing and other services provided by the City as required by this title.

C. Applicant Responsibilities. Unless otherwise indicated in this title, the applicant shall be responsible for the initiation, preparation, submission, and expense of all required reports, assessment(s), studies, plans, reconnaissance(s), peer review(s) by qualified consultants, and other work prepared in support of or necessary to review the Application. For those items initiated by the City, e.g., per review(s), the applicant is responsible for the expense and both the preparation and submission of the application materials and not initiation of the review or preparation of the package submitted to the respective Peer Reviewer.

D. Payment. Fees established in accordance with this title shall be paid upon submission of a signed Application or petition for appeal, or as otherwise provided by any fee ordinance or resolution adopted by the City Council.

E. Investigation Fee. To investigate Violations of this title, all city fees associated with investigation of Violations of this title may be assessed at the adopted billable staff hour rate in addition to any required consultant costs, legal

costs, and other expenses necessary to complete the investigation of the Violation. The payment of such investigation fees shall not exempt any person from compliance with all other provisions of this title, nor from penalties prescribed by law.

14.10.130 Compliance.

A. The regulations for compliance with the provisions of this title are set forth in EMC Section 18.30.040, Scope and compliance.

B. When a Critical Area or its required Buffer has been altered in Violation of this title, the Department shall require the property owner to bring the site into compliance. The property owner shall be required to submit the appropriate Critical Areas Application, as applicable for each chapter of this title. In addition to any required site investigation, Delineations, assessments, or reports, the property owner shall be required to submit a Restoration plan that identifies the proposed mitigation to bring the subject property into compliance with the requirements of this title. (Ord. 02-200 § 2).

14.10.140 Warning and disclaimer of liability.

A. The degree of protection required through application of this title is deemed to be reasonable for regulatory purposes and is based on Best Available Science; however, natural events that may exceed the geographic boundaries regulated under this title can and will occur, e.g., flood heights that are higher than anticipated. This title does not imply that land outside designated hazard areas or uses permitted within such areas will be free from damages.

B. The express purpose of this title is to provide for the health, safety and welfare of the general public, and not to protect individuals or create or otherwise establish or designate any particular class or group of persons who will or should be especially protected or benefitted by the terms of this title. The obligation of complying with the requirements of this title and the liability for failing to do so is hereby placed upon the property owner and/or persons responsible for the condition of the property, buildings or premises.

C. Nothing in this title is intended to be nor shall be construed to create or form the basis for any liability on the part of the City, its officers, officials, employees or agents, for any injury or damage resulting from the failure of the owner of property or land to comply with the provisions of this title or by reason or in consequence of any inspection, notice, order, certificate, permission or approval, authorized or issued or done in connection with the implementation or enforcement of this title, or by reason of any action or inaction on the part of the City, related in any manner to the enforcement of the title by its officers, officials, employees or agents.

14.10.150 Appendix.

A. Title and Plat Notification Forms.

APPENDIX A

TITLE AND PLAT NOTIFICATION FORMS

A. Notice for Title Notification.

1. Example:

Tax Parcel Number:

Address:

Legal Description:

Present Owner:

NOTICE: This property contains [identify Critical Area, e.g., Wetlands or Wetland Buffers] as defined by EMC Title 14. The site was the subject of a development proposal for application number [insert case file number] filed on [insert date]. Restrictions on use or alteration of the site may exist due to natural conditions of the property and resulting regulations. Review of such application has provided information on the location of the [identify Critical Area, e.g., Wetlands or Wetland Buffers] and any restriction on use.

Date

Signature of owner

Notary acknowledgment and notary seal

B. Additional Title Notification Statements.

1. Title notification for liquefaction and dynamic settlement hazard areas shall include a statement of the performance criteria, i.e., protection of life safety only, provision for minimal structural damage so that post-earthquake functionality is substantially unchanged, no structural damage for the design earthquake.
2. Title notification for fault rupture hazard areas shall include a statement that a fault rupture hazard area or associated Buffer exists on the site. The title notification shall include a site plan of the subject property with the fault rupture hazard area and associated Buffer identified.
3. Properties that contain Flood Hazard Areas pursuant to EMC Chapter 14.80 shall include the following statement:
4. Flood Elevation Certificates are kept on file by the Department.

C. Notice for Plat Notification/Plat Notes.

1. General. The following notice shall be placed on the face of the final plat, short plat, large lot, or binding site plan documents when said subdivision contains any Critical Area or Buffer:

Notice: This site lies within a [insert type of Critical Area] as defined in EMC Title 14. Restrictions on use or alteration of the site may exist due to natural conditions of the site and resulting regulation.

2. Native Vegetation Preservation Areas. The following notice shall be placed on the face of the final plat, short plat, large lot, or binding site plan documents when said subdivision contains any Critical Area or Buffer and when said Critical Area or Buffers have been identified as native or natural vegetation preservation areas.

Notice: The Critical Areas appearing on this [final site plan/preliminary plat/final plat/short plat/large lot/engineering drawing] contain areas of Native Vegetation intended to Buffer the Critical Area from the adverse effects of development. These Critical Areas shall remain and be maintained in a natural, undeveloped, open space state. There shall be no Clearing and Grading or construction within the Critical Areas, except as shown on plans or documents approved by the City of Edgewood and contained in the official files for this development. Each Critical Area shall remain undisturbed except for periodic watering and hand weeding of plants designated as noxious by the State of Washington.

3. Plat Notes for Flood Hazard Areas. The following notes shall be placed on the face of any of final plat, short plat, large lot, or binding site plan documents which lie within a Flood Hazard Area.

- a. Clearing and Grading within the limits of the 100-year Floodplain is prohibited, except for watercourse related construction, repair, or maintenance work that is done by the City for management operations.
- b. If a higher frequency event occurs or if existing conditions upon which the Flood Hazard Area boundaries were based were to change or occur differently than depicted, then the level of protection

afforded by the existing levee, if applicable, and Flood Hazard Area standards may not be adequate to prevent the subject site from flooding.

c. All purchasers, developers, and their agents of property within the subject development area or parcel shall take notice of the above conditions and hereby agree to defend, indemnify, and hold harmless the City from any and all claims, losses, costs, liabilities, or damages of any nature imposed upon or asserted against Edgewood arising out of or caused by the City's issuance of approval or by issuance of any other permits arising out of this approval.

d. All occupants or owners of property in the subject area assume the risk of flooding which may occur and waive any claims against the City arising out of damage or injury to person or property resulting therefrom. (Ord. 17-492 § 2 (Exh. A); Ord. 16-461 § 3; Ord. 02-200 § 2).

Chapter 14.20**DEFINITIONS**

- A. This title relies on the definitions contained in EMC Chapter 18.20 - Definitions. Any word or phrase not contained herein shall be first referenced to EMC Chapter 18.20 for meaning. The City also adopts by reference the definitions stated in WAC 197-11-700 through 197-11-799 as now or hereafter amended.
1. For any word or term not defined herein, the latest edition of Webster's Dictionary shall be used.
 2. The Director, or their designee, has the final authority to determine the interpretation or usage of terms used in this Chapter.
- B. Additional definitions not contained in EMC Chapter 18.20 that apply to this title are:
1. *Addition* – an alteration to an existing structure that increases the floor area, either affixed to the structure's side or an upper story addition.
 2. *Agricultural Activities* – the production of crops or raising or keeping livestock, including operation and maintenance of farm and stock ponds, drainage ditches, irrigation systems, and normal operation, maintenance, and repair of existing serviceable agricultural structures, facilities, or improved areas, and the practice of aquaculture. Activities which bring an area into agricultural use are not part of an ongoing activity. An operation ceases to be ongoing when the area in which it was conducted is proposed for conversion to a non-agricultural use or has lain idle for a period of longer than five (5) years, unless the idle land is registered in a federal or state soils conversation program. Forest practices regulated under RCW Chapter 76.09 or WAC Title 222 are not included in this definition.
 3. *Agricultural Land(s)* – land primarily devoted to the commercial production of horticultural, viticultural, floricultural, dairy, apiary, vegetable, or animal products or of berries, grain, hay, straw, turf, seed, Christmas trees not subject to the excise tax imposed by RCW Sections 84.33.100 through 84.33.140, finfish in upland hatcheries, or livestock, and that has Long-Term Commercial Significance for agricultural production.
 4. *Animal Containment Area* – a site keeping at least 2,000 pounds of large animals per acre or 750 pounds of small animals per acre, or where a high volume of waste material is deposited in quantities capable of impacting groundwater resources.
 5. *Animal, Large* – an animal weighing 100 pounds or more.
 6. *Animal, Small* – an animal with an average weight of less than 100 pounds.
 7. *Application* – a request for a license. *Base Flood* – the flood having a one percent chance of being equaled or exceeded in any given year, also referred to as the "100-year flood," and is designated on FIRM(s) by the letter A or V.
 8. *Best Available Science* – scientific information applicable to the Critical Area prepared by local, state, or federal natural resource agencies, a qualified scientific professional, or team of qualified scientific professionals that is consistent with criteria established in WAC Sections 365-195-900 through WAC 365-195-925.
 9. *Best Management Practices (BMP)* – conservation practices or systems of practices and management measures that:
 - a. Control soil loss and reduce water quality degradation caused by high conservations of nutrients, animal waste, toxics and sediment;

- b. Minimize adverse impacts to surface water and ground water flow and circulation patterns and to the chemical, physical, and biological characteristics of Wetlands;
 - c. Protect trees and vegetation designated to be retained during and following site construction and use Native Plant species appropriate to the site for re-vegetation of disturbed areas; and
 - d. Provide standards for proper use of chemical herbicides within Critical Areas.
- 10. *Buffer* – areas contiguous with Critical Areas that are required for the integrity, maintenance, function, and structural stability of said Critical Areas.
 - 11. *Building Footprint* – the horizontal area measured within the outside of the exterior walls of the ground floor of all principal and accessory buildings on a lot.
 - 12. *City* – the City of Edgewood municipal corporation.
 - 13. *City Council* – the Edgewood City Council.
 - 14. *Classification* – defining value and hazard categories to which Critical Areas and land resource lands will be assigned.
 - 15. *Compensatory Mitigation* – replacing project-induced losses or impacts to a Critical Area.
 - 16. *Conservation Easement* – a recorded deed restriction or covenant that runs in perpetuity on a parcel of land restricting the use of the property by preventing future real estate development such as residential, industrial, or commercial use that may allow for continued current uses, e.g., residential, recreational, agriculture, forestry, or ranching.
 - 17. *Contaminant* – any chemical, physical, biological, or radiological substance that does not occur naturally or occurs at concentrations and durations as to be injurious to human health or welfare or shown to be ecologically damaging.
 - 18. *Crawl Space* – the shallow space beneath the bottom floor of a house with no basement; used for access and inspection of framing, electrical, plumbing, insulation, vapor barriers, or duct work. For purposes of the National Flood Insurance Program Elevation Certificate, this definition does not include spaces that have subgrade around all sides, which shall be considered a basement.
 - 19. *Critical Aquifer Recharge Areas* – areas with a critical recharging effect on aquifers used for potable water, including areas where an aquifer that is a source of drinking water is vulnerable to contamination that would affect the potability of the water, or is susceptible to reduced recharge.
 - 20. *Critical Area* – land that contains any of the following area, areas, or ecosystems: Aquifer Recharge Areas, Fish and Wildlife Habitat Conservation Areas, Frequently Flooded Areas, Geologically Hazardous Areas, or Wetlands; as defined in RCW 36.70A, as it now exists or may be hereinafter amended, and this Chapter.
 - 21. *Critical Facilities* – those facilities occupied by populations or which handle dangerous substances including but not limited to hospitals, medical facilities, nursing homes; structures housing, supporting, or containing toxic or explosive substances; covered public assembly structures; school buildings through secondary, including daycare centers; buildings for colleges or adult education; police, fire, and emergency response installations; jails and detention facilities; and all structures with occupancy of greater than 5,000 people. These facilities are such that even a slight chance of flooding might be too great.
 - 22. *Debris Flow* – the rapid downslope movement of a viscous mass of water-saturated sediments.
 - 23. *Degraded* – to have suffered a decrease in naturally occurring function or value.
 - 24. *Delineation* – a Wetland study conducted in accordance with the approved federal Wetland delineation manual and applicable regional supplements.

25. *Depressional Pothole* – a relatively sunken or low-lying area of the earth’s surface, especially one having no natural outlet for surface drainage.
26. *Director* – the head of the City’s Community Development Department or their designee.
27. *DRASTIC* – an acronym for a computer model developed by the National Water Well Association and Environmental Protection Agency used to measure aquifer susceptibility.
28. *Earth Material* – naturally occurring rock, soil, stone, sediment, or combination thereof.
29. *Earthflow* – a slow downslope movement of viscous, saturated sediments.
30. *Elevation Certificate* – the official form (FEMA Form 81-31) used to track development, provide elevation information necessary to ensure compliance with community floodplain management ordinances, and determine the proper insurance premium rate with Section B completed by community officials.
31. *Encroachment* – development or regulated activity conducted inside the boundaries of any Critical Areas or Buffer.
32. *Engineer* – as defined by RCW Chapter 18.43.
33. *Engineering Geologist* – a geologist who has met the qualifications in engineering geology established under Chapter 18.220 RCW.
34. *Enhancement* – actions performed within existing Critical Areas or Buffers to intentionally increase or augment one or more ecological functions or values of the existing area. Enhancement actions include, but are not limited to, increasing plant diversity and cover; increasing wildlife habitat and structural complexity with snags or woody debris; installing environmentally compatible erosion controls; removing non-Native Plant or animal species; or removing human-made structures or fill that are degrading ecological functions or values.
35. *Erosion Hazard Areas* – those areas that because of natural characteristics, including vegetative cover, soil texture, slope, gradient, and rainfall patterns, or human-induced changes to such characteristics, are vulnerable to erosion.
36. *Facility* – all structures, contiguous land, appurtenances, and other improvements on the land used for recycling, reusing, reclaiming, transferring, storing, treating, disposing, or otherwise handling a hazardous substance. This term includes underground and aboveground tanks and operations, which handle, use, dispose of, or store hazardous substances.
37. *Filling* – the act of placing fill or fill material on any surface, including temporary stockpiling of fill material.
38. *Finished Floor* – the top of the next higher floor above the Lowest Floor. For purposes of the National Flood Insurance Program Elevation Certificate, the finished floor referenced in this regulation shall equal the top of the next higher floor.
39. *Fisheries Biologist* – a professional with a degree in fisheries or certification by the American Fisheries Society, or with five (5) years of professional experience as a fisheries biologist.
40. *Flood Hazard Areas* – areas of flooding identified by verifiable flooded areas using:
 - a. Aerial photographs of the city, especially those taken in wintertime 1996 and 1997;
 - b. Relevant and verifiable information from the City’s capacity analysis technical review Ad-hoc committee (CATRAC) draft report, 2000;

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- c. Relevant and verifiable government and citizen photographs, notes, observations, etc. regarding historic ponding/flooding levels;
 - d. Relevant and verifiable information available through Pierce County;
 - e. Relevant and verifiable information available through the Federal Emergency Management Agency (FEMA); or
 - f. Areas of land located in floodplains, which are subject to a one percent or greater chance of flooding in any given year, including, but not limited to, streams, rivers, lakes, ponds, Wetlands, or Depressional Potholes.
41. *Flood Insurance Rate Map (FIRM)* – the official map on which the Federal Insurance Administration (FIA) has delineated both the areas of special flood hazard and the risk premium zones applicable to the community.
42. *Flood Fringe* – the area subject to inundation by the Base Flood, but outside the limits of the Floodway, and which may provide needed temporary storage capacity for floodwaters.
43. *Floodplain* – the total area subject to inundation by the Base Flood, including the flood fringe and the Floodway areas.
44. *Floodway* – the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to convey and discharge the Base Flood without cumulatively increasing the water surface elevation by more than one foot, and those areas designated as deep and/or fast-flowing water.
45. *Fluvial Processes* – the physical interaction of flowing water and the natural channels of rivers and streams.
46. *Frequently Flooded Area* – lands in the floodplain subject to at least a one percent or greater chance of flooding in any given year, or within areas subject to flooding due to high groundwater. These areas include, but are not limited to, streams, rivers, lakes, Wetlands, and areas where high groundwater forms ponds on the ground surface.
47. *Geologically Hazardous Areas* – areas that because of their susceptibility to erosion, sliding, earthquake, or other geological events are not suited to the siting of commercial, residential, or industrial development consistent with public health or safety concerns.
48. *Geologist* – an Engineering Geologist or hydrogeologist that is registered in the State of Washington.
49. *Geotechnical Professional* – a person with experience and training in analyzing, evaluating, and mitigating landslide, erosion, or seismic hazards. A geotechnical professional shall be licensed in the state of Washington as a Geologist or Professional Engineer, and must have five or more years' experience specializing in landslide, erosion, or seismic hazards, as applicable.
50. *Geotechnical Report* – a report prepared by a Geologist or Professional Engineer licensed by the state of Washington with expertise in geotechnical engineering, evaluating the site conditions and mitigating measures necessary to reduce the risks associated with development in Geologically Hazardous Areas.
51. *Grading or Clearing and Grading* – any excavating, filling, clearing, creating of impervious surfaces, or any combination of these items.
52. *Habitat Management Plan* – a report prepared by a professional Wildlife Biologist or Fisheries Biologist, which discusses and evaluates the measures necessary to maintain fish and wildlife habitat conservation areas on a proposed development site.
53. *Habitat of Local Importance* – an area, range, or habitat within which a species has a primary association and which, if altered, may reduce the likelihood that the species will maintain and reproduce over the long term. Examples include areas of high relative density or species richness, breeding habitat, winter range,

and movement corridors. These areas may also include habitats that are of limited availability or high vulnerability to alteration.

54. *Hard Armoring* – the use of large rock or human-made materials to protect property from shoreline erosion. Such techniques include cement or concrete bulkheads, steel structures, rock wall revetments, and rock gabion structures. Hard Armoring typically does not utilize or integrate any of soft armoring or Soil Bioengineering Methods.
55. *Holocene Epoch* – that part of the geologic record that post-dates the youngest deposits associated with the late Pleistocene Age Fraser Glaciation and is typically considered to be the past 10,000 years.
56. *Hydrogeologic Assessment* – a report detailing the subsurface conditions, the design of a proposed land use action, and the facilities operation which indicates the susceptibility and potential for contamination of groundwater supplies.
57. *Lake* – any impoundments of open water 20 acres or larger.
58. *Landslide Hazard Area* – any area subject to risk of mass movement due to a combination of geologic, topographic, and hydrologic factors.
59. *LiDAR* – an acronym that stands for Light Detection and Ranging imaging.
60. *Long-Term Commercial Significance* – the growing capacity, productivity, and soil composition of land, which makes it suitable for long-term commercial production, in consideration with the land's proximity to population areas, and the possibility of more intense uses of land.
61. *Lowest Floor* – the lowest floor of the lowest enclosed area (including basement and crawl space). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access, or storage in an area other than a basement area, is not considered a building's lowest floor; provided, that such enclosure is not built so as to render the structure in Violation of the applicable non-elevation design requirements of this title.
62. *Mineral Resource Lands* – those lands primarily devoted to the extraction of minerals or which have known or potential long-term commercial significance for the extraction of minerals.
63. *Mudflow* – a Debris Flow containing an abundance of fine particles.
64. *Native Vegetation or Native Plants* – a mix of plant species comprising herbs, grasses, grass-like plants, shrubs and trees indigenous to the Puget Sound region that reasonably could be expected to naturally occur on the site.
65. *Natural Resource Lands* – agricultural and mineral resource lands, which have long-term commercial significance.
66. *New Construction* – structures for which the Start of Construction commenced on or after the effective date of this Critical Areas ordinance.
67. *Ordinary High Water Mark (OHWM)* – the mark on all lakes, streams and tidal waters that will be found by examining the beds and banks and ascertaining where the presence and action of waters are so common and usual, and so long continued in all ordinary years, as to mark upon the soil a character distinct from that of the abutting upland and vegetation, as that condition exists on the effective date of the ordinance codified in this title, or as it may naturally change thereafter. In any area where the ordinary high water mark cannot be found, the ordinary high water mark shall be the line of mean higher high tide in areas adjoining saltwater, and the line of mean high water in areas adjoining freshwater.
68. *Pond* – naturally occurring impoundments of open water less than 20 acres in size and larger than 2,500 square feet, which maintain standing water throughout the year. See also *Depressional Pothole*.

69. *Priority Habitats and Species* – habitats and species of local importance and concern in urban areas, as identified and mapped by the Washington Department of Fish and Wildlife priority habitat and species (PHS) program. Priority Species are wildlife species of concern due to their population status and their sensitivity to habitat alteration. Priority Habitats are areas with one or more of the following attributes: comparatively high wildlife density; high wildlife species richness; significant wildlife breeding habitat; significant wildlife seasonal ranges; significant movement corridors for wildlife; limited availability; or high vulnerability.
70. *Professional Engineer* – an engineer currently licensed and registered in the state of Washington.
71. *Regulated Activities* – means, but is not limited to, any of the following activities which are directly undertaken or originate in a regulated Critical Area or its Buffer: building permit, commercial or residential; binding site plan; franchise right-of-way construction permit; site development permit; right-of-way permit; short subdivision; use permits; subdivision; utility permits; or any subsequently adopted permit or required approval not expressly exempted by this title.
72. *Restoration* – an action which returns habitat to a state in which its stability and functions approach its unaltered state as closely as possible. This may be accomplished through measures including, but not limited to, re-vegetation, removal of intrusive stream bank structures, and removal or treatment of toxic materials. Restoration does not imply a requirement for returning the Critical Area to aboriginal or pre-European settlement conditions.
73. *RCW* – an acronym that stands for Revised Code of Washington.
74. *Riparian* – the area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. Riparian habitat begins at the ordinary high water mark and includes the entire extent of the floodplain and riparian areas of Wetlands that are directly connected to the stream course.
75. *Seismic Hazard Areas* – areas subject to severe risk of damage as a result of earthquake-induced ground shaking, slope failure, settlement, or soil liquefaction.
76. *Sensitive Areas* – agricultural lands and mineral resource lands and all associated Buffers.
77. *Shoreline* – the line where a body of water and the shore meet or the strip of land along the shoreline. There are no waters within the City meeting the criteria of shorelines of statewide significance as defined by RCW 90.58.030.
78. *Site* – a lot, parcel, tract, or combination of lots, parcels, or tracts on which a regulated activity is proposed.
79. *Sludge* – a semi-solid substance consisting of settled solids combined with varying amounts of water and dissolved materials generated from a wastewater treatment plant or system or other sources, including septage sludge, sewage sludge, and industrial sludge.
80. *Sludge Land Application Site* – a site where stabilized sludge, septage, and other organic wastes are applied to the surface of the land in accordance with established agronomic rates for fertilization or soil conditioning.
81. *Special Occupancy Structures* – those structures that have the potential to provide capacity for large numbers of people or special groups of people or assemblies such as but not limited to schools, jails and detention facilities, and resident incapacitated patients.
82. *Species of Local Importance* – species that are of local concern due to their population status or their sensitivity to habitat manipulation.
83. *Soft Armoring Techniques or Soil Bioengineering Methods* – the use of woody plants and limited structural-mechanical systems that are integrated in a structurally and environmentally sound manner to repair and protect slopes and shorelines against shallow mass wasting and surface erosion. Examples include, but are

not limited to live stake, live fascine, brushlayer, live cribwall, vegetated geogrid, branchpacking, live slope grading, beach berms, or earthen berms.

84. *Stream* – a feature where surface waters produce a defined channel or bed. A defined channel or bed is an area that demonstrates clear evidence of the passage of water and includes, but is not limited to, bedrock channels, gravel beds, sand and silt beds, and defined-channel swales. The channel or bed need not contain water year-round. This definition is not intended to include artificially created irrigation ditches, canals, storm or surface water devices, or other entirely artificial watercourses, unless they are used by salmonids or created for the purposes of stream mitigation.
85. *Substantial Damage* – damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed fifty (50) percent of the market value of the structure before the damage occurred.
86. *Substantial Improvement* – any repair, reconstruction, addition, rehabilitation, or other improvement of a structure, whereby the cost for the work exceeds fifty (50) percent of the market value of the existing structure before the “Start of Construction” of the improvement. The “cost” and “market value” may be determined using the current permit valuation. The Director shall determine the current permit valuation based on the cost per square foot values in effect at the time of permit application. Substantial improvement shall be accumulative from the effective date of the ordinance codified in this chapter. This term includes structures which have incurred Substantial Damage, regardless of the actual repair work performed. The term does not, however, include either:
 - a. Any project for improvement of a structure to correct existing Violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions; or
 - b. Any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places; provided, that the alteration will not preclude the structure’s continued designation as a historic structure.
87. *Toe of Slope* – a distinct topographic break in slope at the lowermost limit of the landslide or erosion hazard area.
88. *TPCHD* – an acronym that stands for the Tacoma-Pierce County Health Department.
89. *Underground Storage Tank or UST* – one tank or a combination of multiple tanks, including the underground pipes connected thereto, which are used to contain or dispense an accumulation of hazardous substances or hazardous wastes, and the total volume of which is 10 percent or more beneath the surface of the ground.
90. *Urban Growth* – growth that makes intensive use of the land for the location of buildings, structures, and impermeable surfaces to such a degree as to be incompatible with the primary use of such land for the production of food, other agricultural products, or fiber, or the extraction of mineral resources. When allowed to spread over wide areas, Urban Growth typically requires urban governmental services.
91. *View Corridor* – an area, which affords views of lakes, mountains, or other scenic amenities normally enjoyed by residential property owners.
92. *Violation* – See EMC Chapter 1.10 for penalties.
93. *Volcanic Hazard Areas* – those areas subject to pyroclastic flows, lava flows, and inundation by Debris Flows, Mudflows, or related flooding resulting from geologic or volcanic events on Mount Rainier.
94. *WAC* – an acronym that stands for the Washington Administrative Code.

95. *Wellhead Protection Area* – the area within the 10-year time-of-travel zone boundary of a Group A public water system well, as delineated by the water system purveyor or its designee, pursuant to WAC 246-290-135.
96. *Wetland* – areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial Wetlands intentionally created from non-Wetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those Wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands may include those artificial Wetlands intentionally created from non-Wetland areas created to mitigate conversion of Wetlands.
97. *Wetland Category* – the numeric designation (I through IV) assigned to a Wetland to indicate the Wetland's overall function and value. Wetland categories rank the City's Wetlands from highest (Category I) to lowest (Category IV) using the current version of the Washington State Wetland Rating System for Western Washington (Hruby, 2014)
98. *Wetland Class* – the U.S. Fish and Wildlife Service wetland classification scheme that uses a hierarchy of systems, subsystems, classes, and subclasses to describe wetland habitat types (refer to USFWS, December 1979, Classification of Wetlands and Deepwater Habitats of the United States for a complete explanation of the wetland classification scheme). These include, for example: forested, scrub-shrub, emergent, and aquatic bed.
99. *Wetland Mosaic* – a patchwork of Wetlands that is considered one unit where each patch of Wetland is less than one acre and the areas delineated as vegetated Wetland are more than fifty percent of the total area of the Wetlands and uplands together.
100. *Wetland Specialist* – a person that obtained Professional Wetland Scientist (PWS) or Wetland Professional In-Training (WPIT) certification from the Society of Wetland Scientists or a qualified Wetland professional with experience and training in Wetlands issues and with experience in performing a Delineation, analyzing Wetland functions and values, analyzing Wetland impacts, and recommending Wetland mitigation and Restoration. A Qualified Wetland Professional is a person with experience and training that includes, at a minimum:
- a. A B.S., B.A., or equivalent degree in biology, botany, environmental studies, fisheries, soil science, wildlife, agriculture, or related field; and
 - b. Two years of related work experience; and
 - c. One-year experience delineating Wetlands using the Unified Federal Manual and preparing Wetland reports and mitigation plans; OR
 - d. Four years of related work experience and training; and
 - e. Two years of experience delineating Wetlands using the Unified Federal Manual and preparing Wetland reports, and mitigation plans.
101. *Wildlife Biologist* – a professional with a degree in wildlife, or certification by the Wildlife Society, or with five (5) years of professional experience as a Wildlife Biologist. (Ord. 17-492 § 2 (Exh. A); Ord. 16-461 § 2; Ord. 15-447 § 1 (Exh. A); Ord. 02-200 § 2).

Chapter 14.30**USE AND ACTIVITY REGULATIONS****Sections:**

- 14.30.010 Permitted uses.
- 14.30.020 Regulated uses and activities.
- 14.30.030 Exemptions.
- 14.30.040 Nonconforming uses and structures.
- 14.30.050 Reasonable use exceptions.
- 14.30.060 Current use assessment program.

14.30.010 Permitted uses.

Uses permitted on properties designated as Critical Areas shall be the same as those permitted in the zone Classification shown in the City's Official Zoning Map unless specifically prohibited by this title. (Ord. 02-200 § 2).

14.30.020 Regulated uses and activities.

A. Unless the requirements of this title are met, the Department shall not grant any approval or permission to alter the condition of any land, water, or vegetation, or to construct or alter any structure or improvement regulated through the following: building permit, commercial or residential; binding site plan; franchise right-of-way construction permit; site development permit; right-of-way permit; short subdivision; large lots; use permits; subdivision; utility permits; or any subsequently adopted permit or required approval not expressly exempted by this chapter.

B. The following activities are regulated within any Critical Area and its Buffer, unless exempted by EMC

14.30.030:

1. Removing, excavating, disturbing, or dredging soil, sand, gravel, minerals, organic matter, or materials of any kind;
2. Dumping, discharging, or Grading;
3. Draining, flooding, or disturbing the water level or water table. In addition, an activity which involves intentional draining, flooding, or disturbing the water level or water table in a Wetland or stream in which the activity itself occurs outside the regulated area shall be considered a regulated activity;
4. Driving, piling, or placing obstructions, including placement of utilities;
5. Constructing, reconstructing, installing, demolishing, or altering the size of any structure or infrastructure, including manufactured and mobile homes;
6. Altering the character of a regulated area by destroying or altering vegetation through clearing, harvesting, cutting, intentional burning, shading, or planting;
7. The division of land;
8. The creation of hard surfaces; and
9. Any additional activities regulated in EMC Chapter 14-80 – Flood Hazard Areas.

14.30.030 Exemptions.

A. Individuals, organizations, or associated parties shall avoid potential impacts to Critical Areas and their Buffers to the greatest degree feasible. To be exempt from this title does not give permission to degrade a Critical Area or its Buffer or ignore risk from natural hazards. Any incidental damage to, or alteration of, a Critical Area or its Buffer that is not a necessary outcome of the exempted activity shall be restored, rehabilitated, or replaced at the responsible party's expense.

B. The following activities are exempt from the provisions of this title:

1. Operation, maintenance, or repair of existing structures, infrastructure improvements, utilities, public or private roads, dikes, levees, or drainage systems, that do not require construction permits, if the activity does not further alter or increase the impact to, or encroach further within, the Critical Area or Buffer and there is no increased risk to life or property as a result of the proposed operation, maintenance, or repair. Operation and maintenance includes vegetation management performed in accordance with BMPs that are a part of ongoing maintenance of structures, infrastructure, or utilities, provided that such management actions are part of ongoing maintenance, do not expand further into the Critical Area or Buffer, are not the result of an expansion of the structure or utility, and do not directly impact an endangered or threatened species.

2. Normal maintenance or repair of existing structures or developments, including damage by accident, fire, or elements. "Normal maintenance" includes those usual acts to prevent a decline, lapse, or cessation from a lawfully established condition. "Normal repair" means to restore a development to a state comparable to its original condition including, but not limited to, its size, shape, configuration, location, and external appearance, within a reasonable period after decay or partial destruction, except where repair causes substantial adverse effects to Critical Areas or their Buffers. Replacement of a structure or development may be authorized as repair where such replacement is the common method of repair for the type of structure or development and the replacement structure or development is comparable to the original structure or development including, but not limited to, its size, shape, configuration, location, and external appearance and the replacement does not expand further into the Critical Area or Buffer. Refer to EMC Section 14.30.040.D for requirements associated with repair of Substantial Damage of non-conforming structures.

3. Reconstruction, remodeling, or maintenance of existing single-family residential structures and accessory structures that are located outside a Flood Hazard Area and active Landslide Hazard Area; provided, that a one-time only expansion of the Building Footprint does not increase by more than 25 percent and that the New Construction or related activity does not further intrude into the Critical Area or related Buffer. The exemption shall not apply to reconstruction which is proposed as a result of structural damage associated with a Critical Area.

4. Reconstruction, remodeling, or maintenance of structures, other than single-family structures and accessory structures that are located outside a Flood Hazard Area or active Landslide Hazard Area; provided, that such reconstruction, remodeling, or maintenance does not increase the floor area nor extend beyond the existing ground coverage. The exemption shall not apply to reconstruction which is proposed as a result of site or structural damage associated with a Critical Area, such as slope failure in a Landslide Hazard Area or flooding in a Flood Hazard Area.

5. Site investigative work necessary for land use Application submittals such as surveys, soil logs, percolation tests, and other related activities. Critical Area impacts shall be minimized and disturbed areas shall be immediately restored.

6. Emergency actions necessary to prevent imminent threat or danger to public health or safety, or to public or private property, or serious environmental degradation.

a. The Department shall review all proposed emergency actions to determine the existence of the emergency and reasonableness of the proposed actions taken; however, post-emergency actions, such as submittal of permits, completion of City review, modification or removal of the emergency repair work, or mitigation shall be required by the Department.

b. Erosion protection measures shall only be allowed as an emergency action when the owner can demonstrate that there is an imminent threat to an existing residential, commercial, industrial, or agricultural structure. The owner shall retain either City staff or an Engineering Geologist to conduct a site investigation and provide adequate documentation that the situation is actually an emergency. An emergency action is not warranted when the structure is located outside the active landslide area.

c. After the emergency, the person or agency undertaking the action shall fully fund and conduct necessary Restoration or Mitigation for any impacts to the Critical Area and Buffers resulting from the emergency

action in accordance with an approved Critical Area report and mitigation plan. The person or agency undertaking the action shall apply for review, and the alteration, Critical Area report, and mitigation shall be reviewed by the Department in accordance with the review procedures contained herein. Restoration or mitigation activities must be initiated within 90 days of the date of the emergency activity and both must be fully completed within one (1) year.

7. Installation, construction, replacement, repair, operation or alteration of natural gas, cable and telecommunication facilities, electric facilities and lines, water, sewer or storm lines, pipes, mains, equipment, or appurtenances in publicly owned right-of-way, which may be within or adjacent to any Critical Areas or Buffers, subject to full review and approval of the Department, including any Mitigation or Restoration requirements established by the Department.

8. Removal by hand of manmade litter and control of noxious weeds that are included on the state noxious weed list (Chapter 16-750 WAC) or invasive plant species as identified by the City. Control may be conducted by clipping, pulling, or digging, or by an alternative non-mechanical method upon approval of a plan by the Department.

9. Activities undertaken to comply with a United States Environmental Protection Agency superfund order, or a Washington Department of Ecology order, pursuant to the Model Toxics Control Act, including the following activities:

- a. Remediation or removal of hazardous or toxic substances;
- b. Source control; and
- c. Natural resource damage Restoration.

10. Activities within a portion of a Wetland Buffer or fish and wildlife habitat conservation area Buffer located landward of an existing, substantially developed area, such as a paved area, dike, levee, or permanent structure which eliminates or greatly reduces the impact of the proposed activities on the Wetland or fish and wildlife habitat conservation area. The Department shall review the proposal to determine the likelihood of associated impacts.

11. Passive recreation such as hunting, hiking, fishing, and wildlife viewing that does not involve the construction of trails.

12. Enhancement actions that do not involve clearing, Grading or construction activities, e.g., revegetation with Native Plants and installation of nest boxes. Enhancement activity proposals shall be reviewed by the Department.

13. Forest practices conducted in accordance with the requirements of the Forest Practice Act (Chapter 76.09 RCW) and its rules, with the exception of the conversion of forest land to a use other than commercial forestry (Class IV conversions).

14. Existing and ongoing Agricultural Activities, provided that they comply with the provisions of Chapter 14.80 EMC, Flood Hazard Areas, and implement applicable BMP contained in the latest editions of the USDA Natural Resources Conservation Service Field Official Technical Guide; or develop a farm conservation plan in coordinate with the local conservation district. The BMPs or farm plans should address potential impacts to Critical Areas from livestock, nutrient and farm chemicals, soil erosion and sediment control, and agricultural drainage infrastructure. The BMPs or farm plans should ensure that ongoing Agricultural Activities minimize their effects on water quality, Riparian ecology, salmonid populations, and wildlife habitat.

14.30.040 Nonconforming uses and structures.

A. An established use or existing structure located in a Wetland, fish and wildlife habitat conservation area, landslide or Erosion Hazard Area, Flood Hazard Area, and their associated Buffers that was lawfully permitted prior

to the effective date of this title, but which is not currently in compliance with this title, may continue subject to the following four (4) items:

1. Nonconforming Use Expansion. Nonconforming uses shall not be expanded or changed in any way that increases the nonconformity without a permit issued pursuant to the provisions of this title.
2. Nonconforming Structure Expansion. Existing structures shall not be expanded or altered in any manner that will increase the nonconformity without a permit issued pursuant to the provisions of this title, except as provided in EMC 14.30.030(B).
3. Discontinued Uses. Activities or uses which are discontinued for twelve (12) consecutive months shall be allowed to resume only if they are in compliance with this title.
4. Substantial Damage. Nonconforming structures, except for structures located in a Flood Hazard Area or active Landslide Hazard Area which are damaged or destroyed by fire, explosion, flood, or other casualty, may be restored or replaced if reconstruction is commenced within one year of such damage and is substantially completed within 18 months of the date such damage occurred. The reconstruction or Restoration shall not serve to expand, enlarge, or increase the nonconformity except as allowed through the provisions in EMC 14.30.030(B). Structures in a Floodway or active Landslide Hazard Area may be allowed to be restored only up to the limits of Substantial Improvement, as set forth in each chapter. (Ord. 02-200 § 2).

B. The provisions of EMC Section 18.90.110 may also apply to nonconformities not expressly described in this chapter.

14.30.050 Reasonable Use Exceptions.

A. If the application of this chapter would deny all reasonable use of the property, the applicant may apply for a Reasonable Use Exception pursuant to this subsection. The Hearing Examiner may approve alterations to a Critical Area or its Buffers to allow a reasonable use not otherwise allowed by this chapter when the following criteria are met:

1. The application of this chapter would deny all reasonable use of the property;
2. There is no other reasonable use with less impact on the Critical Area;
3. The proposed development does not pose an unreasonable threat to the public health, safety, or welfare on or off the development proposal site and is consistent with the general purposes of this title and the public interest; and
4. Any alterations permitted to the Critical Area or its Buffer shall be the minimum necessary to allow for reasonable use of the property; and any authorized alteration of a Critical Area under this subsection shall be subject to conditions established by the Department including, but not limited to, mitigation under an approved mitigation plan.

B. Application Requirements. A complete Application for a Reasonable Use Exception shall include the following nine (9) items:

1. A description of the areas of the site that contains a Critical Area, Buffers, or within setbacks required under this title;
2. A description of the amount of the site that is within setbacks required by other standards of the zoning code;
3. A description of the proposed development, including a site plan;
4. An analysis of the impact that the amount of development described in subsection (B)(3) of this section would have on the Critical Area;

5. An analysis of whether any other reasonable use with less impact on the Critical Area and associated Buffer(s) is possible;
6. A design of the proposal so that the amount of development proposed as reasonable use will have the least impact practicable on the Critical Area;
7. An analysis of the modifications needed to the standards of this title to accommodate the proposed development;
8. A description of any modifications needed to the required front, side, and rear setbacks; building height; and Buffer widths to provide for a reasonable use while providing greater protection to the Critical Area;
9. Such other information the Department determines is reasonably necessary to evaluate the issue of reasonable use as it relates to the proposed development, such as but not limited to a Wetland Analysis Report, mitigation plan, habitat evaluation study, or a Buffer Enhancement Plan.

C. Review. A reasonable use exception shall be processed according to the procedures in EMC Section 18.40.080.

D. Findings and Determinations. A Reasonable Use Exception may be approved if all of the findings are made in writing and are supported by the record.

14.30.060 Current use assessment program.

A. An owner of Agricultural Land, timberland, or open space desiring current use Classification under Chapter 84.34 RCW may file for such current use Classification with the Pierce County assessor-treasurer's office.

B. The Department shall notify the assessor-treasurer's office when restrictions on development occur on a particular site.

C. The assessor-treasurer's office shall consider the Critical Areas and Buffering requirements of this title in determining the fair market value of land. Any owner of an undeveloped Buffer which has been placed in a separate tract or tracts, protective easement, public or private land trust dedication, or other similarly preserved area shall have that portion of land assessed consistent with those restrictions. (Ord. 02-200 § 2).

**Chapter 14.40
WETLANDS**

Sections:

- 14.40.010 Purpose.
- 14.40.020 Identification, Delineation, Mapping, and Rating.
- 14.40.030 Buffer standards—Wetlands
- 14.40.040 Wetland review procedures.
- 14.40.050 Allowed activities.
- 14.40.060 Mitigation requirements.
- 14.40.070 Appendices.

14.40.010 Purpose.

A. The purpose of this chapter is to avoid or, in appropriate circumstances, to minimize, rectify, reduce, or compensate for impacts arising from land development and other activities affecting Wetlands, and to maintain and enhance the biological and physical functions and values of Wetlands with respect to water quality maintenance, stormwater and floodwater storage and conveyance, fish and wildlife habitat, primary productivity, recreation, education, and historic and cultural preservation. When Wetland impacts occur, mitigation will be required to achieve no net loss of Wetlands in terms of acreage, function, and value. (Ord. 02-200 § 2).

B. This Chapter is intended to be consistent with the requirements of RCW Chapter 36.70A and to implement the goals and policies of the City's Comprehensive Plan for protecting Wetlands.

14.40.020 Identification, Delineation, Mapping, and Rating.

A. Designation. All areas within the city meeting the definition of Wetland in EMC Chapter 14.20 are hereby designated as Critical Areas.

B. Identification and Delineation.

1. Wetlands shall be identified and delineated by a qualified Wetland Specialist in accordance with the 1987 manual in use on January 1, 1995, by the United States Army Corps of Engineers (USACE) and the United States Environmental Protection Agency (EPA); the Department of Ecology's adopted 1997 Wetland Delineation Manual; and applicable subsequent Regulatory Guidance Letters.
2. A Wetland Delineation is valid for five (5) years, after which date the City shall require verification that the Wetland boundaries and prior conditions have not changed to determine whether a revision or additional assessment is needed.

C. Mapping.

1. The approximate location and extent of Wetlands are shown on maps maintained by the City.
2. These maps are useful as a guide for project applicants and property owners, but the maps do not provide a conclusive or definitive indication of a Wetland presence or its extent.
3. Wetlands may exist that do not appear on the maps and some Wetlands that appear on the maps may not meet all of the Wetland designation criteria.

D. Rating. Wetlands shall be rated according to the Washington Department of Ecology Wetland rating system, as set forth in the Washington State Wetland Rating System for Western Washington: 2014 Update (Ecology Publication #14-06-029, or as revised and approved by the Department of Ecology).

E. Illegal Modifications. Wetland rating categories shall not change due to illegal modifications made by the applicant or with the applicant's knowledge.

14.40.030 Buffer standards – Wetlands.

A. Determining Buffer widths. Buffer widths shall be measured horizontally from the perpendicular line established at the Wetland edge as shown in Table 14.40.030.1.

Table 14.40.030.1
Buffer Standards - Wetlands

Wetland Category	Buffer Width (Wetlands scores 3-4 habitat points)	Buffer Width (Wetland scores 5 habitat points)	Buffer Width (Wetland scores 6-7 habitat points)	Buffer Width (Wetland scores 8-9 habitat points)
<i>Category I:</i> Based on total score	75 ft.	105 ft.	165 ft.	225 ft.
<i>Category I:</i> Bogs & Wetlands of High Conservation Value	190 ft.	190 ft.	190 ft.	225 ft.
<i>Category I:</i> Forested	75 ft.	105 ft.	165 ft.	225 ft.
<i>Category II:</i> All	75 ft.	105 ft.	165 ft.	225 ft.
<i>Category III:</i> All	60 ft.	105 ft.	165 ft.	225 ft.
<i>Category IV:</i> All	40 ft.	40 ft.	40 ft.	40 ft.

B. Required Measures to Minimize Impacts to Wetlands. Measures to minimize the impacts of the land use adjacent to Wetlands shall be applied, as shown in Table 14.40.030.2.

Table 14.40.030.2
Wetland Impact Minimization Measures

Disturbance	Required Measures to Minimize Impacts
Lights	• Direct lights away from any Wetland
Noise	• Locate activity that generates noise away from any Wetland • For activities that generate relatively continuous, potentially disruptive noise, such as certain heavy industry or mining, establish an additional 10-foot heavily vegetated buffer strip immediately adjacent to the outer Buffer
Toxic runoff	• Route all new, untreated runoff away from any Wetland while ensuring the Wetland is not dewatered • Establish covenants limiting use of pesticides within 150 feet of Wetlands • Apply integrated pest management
Stormwater runoff	• Retrofit stormwater detention and treatment for roads and existing adjacent development • Prevent channelized flow from lawns that directly enters the Buffer • Use Low Impact Development techniques
Change in water regime	• Infiltrate or treat, detain, and disperse into Buffer new runoff from impervious surfaces and new lawns
Pets and human disturbance	• Use privacy fencing or plant dense vegetation to delineate Buffer edge and to discourage disturbance using vegetation appropriate for the ecoregion

	Place Wetland and its Buffer in a separate tract or protect with a Conservation Easement
Dust	Use BMPs to control dust

C. Modification of Buffer Widths. The standard Buffer widths of subsection (A) of this section may be modified by averaging or increasing.

1. Buffer Averaging. Buffer width averaging may be allowed only where the applicant demonstrates all of the following through the submittal of a Wetland Report that is prepared by a qualified professional.

- a. Buffer Encroachment is unavoidable;
- b. The Wetland contains variations in sensitivity due to existing physical characteristics;
- c. Width averaging will provide equal or greater protection of current Wetland functions and values;
- d. The total Buffer area after averaging is no less than the Buffer area prior to averaging;
- e. The width of the Buffer at any given point after averaging shall be no smaller than 75 percent of the standard Buffer;
- f. The averaging is accomplished within the project boundaries; and
- g. Measures will be taken to ensure that there is no loss of Wetland function due to the Buffer averaging.

2. Buffer Increases.

a. The Department may require increased Buffer width(s) when any of the following are identified:

- i. A larger Buffer is necessary to maintain viable populations of existing species;
- ii. The Wetland is used by, or associated with, species listed by the federal government or the state as endangered, threatened, sensitive, or as documented priority species or habitats, or essential or outstanding potential sites such as heron rookeries or raptor nesting areas;
- iii. The adjacent land is susceptible to severe erosion and erosion control measures will not effectively prevent adverse Wetland impacts;
- iv. The adjacent land has minimal vegetative cover, or slopes greater than 20 percent. (Ord. 02-200 § 2).

b. If an applicant chooses not to apply the Wetland Impact Minimization Measures identified in Table 14.40.030.2, then the Wetland Buffers applicable to the site shall be per Table 14.40.030.3.

Table 14.40.030.3
Wetland Buffers without Minimization of Impacts

Wetland Category	Buffer Width (Wetlands scores 3-4 habitat points)	Buffer Width (Wetland scores 5 habitat points)	Buffer Width (Wetland scores 6-7 habitat points)	Buffer Width (Wetland scores 8-9 habitat points)
<i>Category I:</i> Based on total score	100 ft.	140 ft.	220 ft.	300 ft.

Commented [DG3]: Per a conversation with the DoE, their buffer standards in the table above were already reduced. If we propose another 25 percent reduction, then we are no longer in line with their best available science supported buffer distances. See Page 13 of the Wetlands Guidance for Small Cities, Western WA Version. Buffer width reductions section removed.

<i>Category I:</i> Bogs & Wetlands of High Conservation Value	250 ft.	250 ft.	250 ft.	300 ft.
<i>Category I:</i> Forested	100 ft.	140 ft.	220 ft.	300 ft.
<i>Category II:</i> All	100 ft.	140 ft.	220 ft.	300 ft.
<i>Category III:</i> All	80 ft.	140 ft.	220 ft.	300 ft.
<i>Category IV:</i> All	50 ft.	50 ft.	50 ft.	50 ft.

14.40.040 Wetland review procedures.

A. Wetland Report Requirements. If the Department's maps indicate that a proposed project may be located within 300 feet of a Wetland, the applicant shall submit a Wetland Critical Areas report prepared by a qualified Wetland Specialist. The report requirement may be waived if the Department determines that there are no potential direct or indirect impacts on the Wetland or its Buffers that would result from the proposed development. Wetland Critical Areas reports shall comply with the requirements of this Chapter.

B. Single-Family Dwelling Wetland Review. Construction of a single-family dwelling and Regulated Activities accessory to a single-family dwelling, such as driveways, gardens, fences, walls, lawns, or on-site septic systems, may utilize an alternative Wetland review procedure, subject to the following:

1. Prior to issuance of a building permit, site development permit, or on-site sewage system permit, the applicant shall submit a single-family Wetland certification form completed by a Wetland Specialist that certifies either:
 - a. No regulated Wetlands are present within 300 feet of the project area; or
 - b. Wetlands are present within 300 feet of the project area, but the Buffer does not extend onto the project site.
2. The single-family certification form may be used only to authorize single-family dwellings and accessory structures. It may not be used for new Agricultural Activities, expansion of existing Agricultural Activities, forest practices activities, commercial projects, land divisions, or Buffer width modifications.

14.40.050 Allowed activities.

A. The following three (3) types of Wetlands identified in the paragraphs 1-3 are exempt from the requirement to avoid impacts in EMC 14.10.070.B and may be altered if the impacts are fully mitigated based on the remaining mitigation sequencing actions in EMC 14.10.070.B. In order to verify the following conditions, a Wetland Critical Areas Report meeting the requirements of EMC 14.40.070, Appendix A must be submitted.

1. All isolated Category IV Wetlands less than 4,000 square feet that:
 - a. Are not associated with Riparian areas or their Buffers;
 - b. Are not part of a Wetland Mosaic;
 - c. Do not score 5 or more points for habitat functions based on current version of the Washington State Wetland Rating System for Western Washington (Ecology, 2014).
 - d. Do not contain a Priority Habitat or a Priority Area for a Priority Species identified by the Washington Department of Fish and Wildlife, federally listed species or their critical habitat, or Habitats of and Species of Local Importance as identified in EMC 14.50.040(A).
2. Wetlands less than 1,000 square feet that meet the criteria specified in subsection (A)(1) of this section.
3. Utility projects within Wetland Buffers which have minor or short-duration impacts, as determined by the Department in accordance with the criteria below, and which do not significantly impact the function or values of Wetlands; provided, that such projects are constructed with BMPs and additional

Restoration measures are provided. Minor activities shall not result in the transport of sediment or increased stormwater. Such allowed minor utility projects shall meet the following criteria:

- a. There is no practical alternative to the proposed activity with less impact on Wetlands;
- b. The activity involves the placement of a utility pole, street signs, anchor, or vault or other small component of a utility facility; and
- c. The activity involves disturbance of an area less than 75 square feet.

B. The activities listed below are allowed in Wetlands and their Buffers, and do not require submission of a Critical Area Report, except where such activities would result in a loss of the functions and values of a Wetland or Wetland Buffer. These activities include:

1. Activities in Wetlands in areas managed according to a special area management plan or other plan adopted by the Department and specifically designed to protect Wetland resources.
2. Trimming of vegetation for purposes of providing a View Corridor will be allowed. The trimming is limited to a maximum 20-foot width and the benefit to fish and wildlife habitat may not be reduced. No more than thirty (30) percent of the live crown of a tree may be removed. Trimming shall be limited to hand pruning of branches and vegetation and does not include felling, topping, or the removal of trees. (Ord. 02-200 § 2).
3. Drilling for utilities or utility corridors under a Wetland, with an entrance or exit portal located completely outside of the Wetland Buffer, provided that the drilling does not interrupt the ground water connection to the Wetland or percolation of surface water down through the soil column. Specified studies by a hydrologist are necessary to determine whether the ground water connection to the Wetland or percolation of surface water down through the soil column will be disturbed.

14.40.060 Mitigation requirements.

A. Mitigation. Compensatory Mitigation is required for all unavoidable alterations to Wetlands or their Buffers, except for Buffer averaging when done in accordance with this Chapter. Compensatory Mitigation actions shall replace functions affected by the alteration and shall provide equal or greater functions compared to the impacted Wetland. All projects must first demonstrate compliance with EMC Section 14.10.070.B prior to development of Compensatory Mitigation plans.

B. Preference of Mitigation Actions. Compensatory Mitigation of Wetland areas shall occur in the following order of preference:

1. Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural or historic functions to a former or Degraded Wetland. For the purpose of tracking net gains in Wetland acres, Restoration is divided into:
 - a. Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural or historic functions to a former Wetland. The re-establishment must result in a gain in Wetland acres and functions. Activities could include removing fill material, plugging ditches, or breaking drain tiles.
 - b. Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural or historic functions of a Degraded Wetland. The rehabilitation must result in a gain in Wetland function but does not result in a gain in Wetland acres. Activities could involve breaching a dike to reconnect Wetlands to a floodplain or return tidal influence to a Wetland
2. Creation: The manipulation of the physical, chemical, or biological characteristics of a site to develop a Wetland on an upland or deepwater site where a Wetland did not previously exist. Creation results in a gain in Wetland acres. Activities typically involve excavation of upland soils to elevations that will produce a Wetland hydroperiod, create hydric soils, and support the growth of hydrophytic plant species.

3. **Enhancement:** The manipulation of the physical, chemical, or biological characteristics of a Wetland site to heighten, intensify, or improve specific function(s) or to change the growth stage or composition of the vegetation present. Enhancement is undertaken for specified purposes such as water quality improvement, flood water retention, or wildlife habitat. Enhancement results in a change in some Wetland functions and can lead to a decline in other Wetland functions, but does not result in a gain in Wetland acres. Activities typically consist of planting vegetation, controlling non-native or invasive species, modifying site elevations or the proportion of open water to influence hydroperiods, or some combination of these activities

C. **Approaches to Compensatory Mitigation.** Mitigation for alterations to Wetland and their Buffers shall rely on the approaches listed below.

1. **Wetland Mitigation Banks.** Credits from a certified Wetland mitigation bank may be used to compensate for impacts within the service area specified in the mitigation bank instrument. Use of credits from a Wetland mitigation bank certified under Chapter 173-700 WAC is allowed if:
 - a. The Department determines that it would provide appropriate compensation for the proposed impacts; and
 - b. The impact site is located in the service area of the bank.
 - c. The proposed use of credits is consistent with the terms and conditions of the certified bank instrument.
 - d. Replacement ratios for projects using bank credits is consistent with replacement ratios specified in the certified mitigation bank instrument.
2. **In-Lieu Fee Mitigation.** Credits from an approved in-lieu-fee program may be used when all the following apply:
 - a. The approval authority determines that it would provide environmentally appropriate compensation for the proposed impacts.
 - b. The proposed use of credits is consistent with the terms and conditions of the approved in-lieu-fee program instrument.
 - c. Project using in-lieu-fee credits shall have debits associated with the proposed impacts calculated by the applicant's qualified Wetland Specialist using the credit assessment method specified in the approved instrument for the in-lieu-fee program.
 - d. The impacts are located within the service area specified in the approved in-lieu-fee instrument.
3. **Permittee-responsible mitigation.** In this situation, the permittee performs the mitigation after the permit is issued and is ultimately responsible for implementation and success of the mitigation. Permittee-responsible mitigation may occur at the site of the permitted impacts or at an off-site location within the same watershed. If available, the use of Wetland mitigation banks and in-lieu-fee programs are preferable to permittee-responsible mitigation.

D. **Wetland mitigation ratios.** The ratios listed in Table 14.40.060 apply to permittee-responsible mitigation. The first number specifies the acreage of replacement Wetlands required, and the second number specifies the acreage of Wetlands altered or relocated.

Table 14.40.060
Wetland Mitigation Ratios

Category and Type of Wetland	Creation or Re-establishment	Rehabilitation	Enhancement
Category I: High conservation value/bog	Not considered possible	Not considered possible	Not considered possible
Category I: Mature and old growth forest	6:1	12:1	24:1
Category I: Based on functions	4:1	8:1	16:1
Category II	3:1	6:1	12:1
Category III	2:1	4:1	8:1
Category IV	1.5:1	3:1	6:1

The Director may increase the ratios under the following circumstances:

1. Uncertainty as to the probable success of the proposed Restoration or creation;
2. Significant period of time between destruction and replication of Wetland values;
3. Projected losses in functional value; or
4. The Compensatory Mitigation is off-site.

E. Wetland Buffer mitigation. To mitigate unavoidable impacts to functions and values of Wetland Buffers, a minimum Buffer ratio of 1:1 (alteration area: mitigation area) is required. This ratio assumes that creation or Restoration of a Wetland Buffer with appropriate Native Vegetation is sufficient to compensate for the Wetland Buffer functions and values affected by alteration of an existing Wetland Buffer. If Enhancement of an existing Buffer is proposed as mitigation, a higher mitigation ratio may be required. For any proposed Buffer activities, the applicant must demonstrate that the functions and values of the altered Buffer will be fully replaced by the proposed mitigation. The Department may increase the Buffer mitigation ratios under the following circumstances:

1. The replacement ratio needed to recover the lost functions and values of Buffer area is greater than 1:1 based upon the existing type of vegetative cover of either the impact site or the proposed mitigation site.
2. Uncertainty exists as to the probable success of the proposed Restoration or creation;
3. A significant period of time will elapse between impact and replication of Wetland functions; or
4. The impact was an unauthorized impact.

F. Wetland and Buffer mitigation plans. Compensatory Wetland mitigation plans shall be consistent with Wetland Mitigation in Washington State – Part 2: Developing Mitigation Plans (Ecology, 2006); and Selecting Wetland Mitigation Sites Using a Watershed Approach (Ecology, 2009), or as revised. Mitigation plans shall comply with the requirements established in EMC 14.40.070, Appendix B.

14.40.070 Appendices.

A. Wetland Report.

B. Wetland Mitigation Plan

APPENDIX A

WETLAND REPORT

A. A Wetland Critical Areas Report shall, at a minimum, include the following:

1. The general Critical Areas report requirements in EMC Chapter 14.10.080;
2. Map showing the location of all Wetlands and required Buffers within three hundred (300) feet of the proposed development;
3. An analysis of the onsite Wetland(s) include the following site- and proposal-related information:
 - a. Documentation of any fieldwork performed on the site, including, but not limited to, field Delineation data sheets for Delineations and Wetland rating forms;
 - b. Wetland acreage;
 - c. Wetland Category;
 - d. A discussion of the water sources supplying the Wetland and documentation of hydrologic regime (locations of inlet and outlet features, water depths throughout the Wetland, evidence of recharge or discharge);
 - e. A discussion of the functions of existing Wetlands, including vegetative, faunal, and hydrologic conditions; and
 - f. A description of the methodologies used to conduct the Wetland Delineations;
4. A discussion of measures, including avoidance, minimization, and mitigation, proposed to preserve existing Wetlands;
5. A detailed discussion of the direct and/or indirect potential impacts on the Wetland by the project; and
6. The Wetland mitigation plan requirements of EMC Chapter 14.40.070, Appendix B, if the activity will result in unavoidable impacts to Wetlands or their Buffers.

APPENDIX B

WETLAND MITIGATION PLAN

A. A Wetland mitigation plan shall, at a minimum, include the general mitigation plan requirements in EMC Chapter 14.10.090 and the following information:

1. Existing and proposed Wetland acreage;
2. Vegetative and faunal conditions;
3. Surface and subsurface hydrologic conditions including an analysis of existing and future hydrologic regime and proposed hydrologic regime for enhanced, created, or restored mitigation areas;
4. Relationship within watershed and to existing waterbodies;
5. Soils and substrate conditions, topographic elevations;
6. Existing and proposed adjacent site conditions;
7. Required Wetland Buffers (including any Buffer reduction or averaging and mitigation proposed to enhance Buffers);

8. Property ownership;

9. A discussion of ongoing management practices that will protect Wetlands after the project site has been developed, including proposed monitoring and maintenance programs;

10. A bond estimate for the installation, site preparation, plant materials and installation, fertilizers, mulch, and the proposed monitoring and maintenance work for the required number of years, pursuant to EMC Chapter 14.10.070.E.

Chapter 14.50**CRITICAL FISH AND WILDLIFE HABITAT AREAS**

Sections:

- 14.50.010 Purpose.
- 14.50.020 Fish and wildlife habitat conservation area identification and classification.
- 14.50.030 Buffer standards—Fish and wildlife habitat conservation areas.
- 14.50.040 Fish and wildlife habitat conservation area review procedures.
- 14.50.050 Allowed activities.
- 14.50.060 Alteration of Watercourses
- 14.50.070 Mitigation requirements.
- 14.50.080 Appendix

14.50.010 Purpose.

Many land use activities can impact the habitats of fish and wildlife. Special care must be taken in the management of lands that support fish and wildlife species to ensure that development occurs in a manner that is sensitive to their habitat needs. The purpose of this chapter is to identify fish and wildlife habitat conservation areas and establish habitat protection procedures and mitigation measures that are designed to result in no net loss of habitat functions and values. These areas are necessary for maintaining species in suitable habitats within their natural geographic distribution so that isolated subpopulations are not created as designated by WAC 365-190-080(5). (Ord. 02-200 § 2).

14.50.020 Fish and wildlife habitat conservation area identification and classification.

A. Designation. Fish and wildlife habitat conservation areas include:

1. Waters of the state. Waters of the state include lakes, rivers, ponds, streams, and all other surface waters and watercourses within jurisdiction of the state of Washington, as classified in WAC 222-16-030.
2. Areas with which federally designated endangered, threatened, and sensitive species have a primary association. The U.S. Fish and Wildlife Service and the National Marine Fisheries Service should be consulted for current federal listing status.
3. Areas with which state designated endangered, threatened, and sensitive species have a primary association. The Washington State Department of Fish and Wildlife should be consulted for current state listing status.
4. State priority habitats and areas associated with state priority species. The state Department of Fish and Wildlife should be consulted for current listing of priority habitats and species.
5. Habitats of and Species of Local Importance. The following fish and wildlife species and their associated habitat areas shall be regulated under this chapter:
 - a. Fish. Coho salmon (*Oncorhynchus kisutch*), pink salmon (*Oncorhynchus gorbuscha*), chum salmon (*Oncorhynchus keta*), cutthroat trout (*Oncorhynchus clarkia*), and steelhead (*Oncorhynchus mykiss*).
 - b. Birds. Great blue heron (*Ardea herodias*) and green heron (*Butorides virescens*).
 - c. Areas with which state-listed monitor or candidate fish or wildlife species or federally listed candidate fish or wildlife species have a primary association, and which if altered may reduce the likelihood that the species will survive and reproduce over the long term.
 - d. Heron rookeries.

6. Areas not included. Fish and wildlife habitat conservation areas does not include such artificial features or constructs as irrigation delivery systems, irrigation infrastructure, irrigation canals, or drainage ditches that lie within the boundaries of and are maintained by a port district or an irrigation district or company.

B. Habitat boundary survey. If the Department determines that a regulated habitat conservation area may be present within the project vicinity, the Department may require the habitat area to be delineated and/or mapped by a qualified Fisheries Biologist or Wildlife Biologist who is knowledgeable of fish and wildlife habitat within western Washington, or by the Washington Department of Fish and Wildlife. The boundary of aquatic habitats shall be the ordinary high water mark of the waterbody. The management recommendations for Washington's priority habitats and species or federal equivalent should be used as a tool for identifying and delineating wildlife habitat boundaries. The City may waive this requirement if there is adequate information available on the area proposed for development to determine the impacts of the proposed development and appropriate mitigating measures.

C. Mapping. The approximate location and extent of waters of the state and fish presence within the city are shown on maps maintained by the City. The City shall update the maps periodically as new information becomes available. The approximate location and extent of other fish and wildlife habitat conservation areas area shown on maps maintained by the Washington State Department of Fish and Wildlife and other state and federal agencies. These maps are to be used as a guide and do not provide definitive information about fish and wildlife habitat conservation area size or presence. Fish and wildlife habitat conservation areas may exist that do not appear on the maps.

D. Waters of the state classification. The City hereby adopts the water typing system specified in WAC 222-16-030, as described below:

1. Type S. All waters, within their ordinary high water mark, meeting the criteria as "shorelines of the state" and "shorelines of statewide significance" under RCW Chapter 90.58. As of the effective date of this title, there are no Type S streams within the City's jurisdiction.
2. Type F: segments of natural waters other than Type S Waters, which are within the bankfull widths of defined channels and periodically inundated area of their associated Wetlands, or within lakes, ponds, or impoundments having a surface area of 0.5 acre or greater at seasonal low water and which in any case contain fish habitat.
3. Type Np: all segments of natural waters within the bankfull width of defined channels that are perennial non-fish habitat stream. Perennial stream waters do not go dry any time of a year of normal rainfall. However, for the purpose of water typing, Type Np Waters include the intermittent dry portions of the perennial channel below the uppermost point of perennial flow.
4. Type Ns: All segments of natural waters within the bankfull width of the defined channels that are not Type S, F, or Np waters. These are seasonal, non-fish habitat streams in which surface flow is not present for at least some portion of a year of normal rainfall and are not located downstream from any stream reach that is a Type Np Water. Ns Waters must be physically connected by an above-ground channel system to Type S, F, or Np Waters.

14.50.030 Buffer standards—Fish and wildlife habitat conservation areas.

A. Determining Buffer widths. Buffers shall be required as set forth for each habitat type. The required Buffers shall be delineated, both on a site plan or plat, and on the property prior to approval of any regulated activity.

1. Aquatic habitat conservation areas.

- a. Buffers for aquatic habitat conservation areas shall be based upon the water type Classification of the water body as specified in WAC 22-16-030. Refer to Table 14.50.030 for the water types and the associated Buffer requirements.
- b. The required Buffer width shall be measured in all directions from the ordinary high water mark.

c. The required Buffer shall be extended to include any adjacent regulated Wetland, Landslide Hazard Area, or Erosion Hazard Area and their respective Buffers.

2. Non-aquatic habitat conservation areas. Appropriate Buffers for critical habitat areas and species not listed in Table 14.50.030 shall be determined by the Washington Department of Fish and Wildlife or by a qualified Wildlife Biologist and documented in an approved Habitat Management Plan.

**Table 14.50.030
Buffer Standards**

Water Type	Buffer Width¹
Type S	150 ft. ²
Type F	100 ft.
Type Np	60 ft.
Type Ns	35 ft.

¹ In the event that Buffers for any habitat conservation area or other Critical Area are contiguous or overlapping, the landward-most edge of all such Buffers shall apply.

² As of the effective date of this title, there are no Type S streams within the City's jurisdiction.

B. Modification to Buffer Width Requirements. The standard Buffer widths of subsection (A) of this section may be modified as follows:

1. Buffer Width Reductions. A Buffer width reduction may be proposed through submittal of a Habitat Management Plan. Buffer reductions of up to a maximum of 25 percent may be allowed when the applicant demonstrates the following circumstances:

- a. Buffer Encroachment is unavoidable.
- b. The existing Buffer is predominately un-vegetated, composed of nuisance species, or is in an otherwise highly disturbed condition.
- c. Buffer reduction with Enhancement will provide equal or greater protection of current habitat functions and values, and will not adversely affect salmon habitat.
- d. The Buffer reduction will not increase the risk of slope failure or downslope stormwater drainage impacts.
- e. The minimum width of the Buffer at any given point shall be at least seventy-five (75) percent of the standard width, or twenty-five (25) feet, whichever is greater.
- f. The project includes a Buffer Enhancement Plan as part of the mitigation required by EMC Chapter 14.50.070. The Buffer Enhancement Plan shall use Native Plant species.

2. Buffer Width Increases. The Department may require increased Buffer width(s) when any of the following are identified:

- a. A larger Buffer is necessary to maintain viable populations of existing species or protect the existing functions of the habitat area;
- b. The adjacent land is susceptible to severe erosion and erosion control measures will not effectively prevent adverse habitat impacts;
- c. The adjacent land has minimal vegetative cover or slopes greater than 20 percent; or

- d. The habitat area is in an area of high tree blow down potential. In these cases the habitat area may be expanded an additional 50 feet on the windward side.

14.50.040 Fish and wildlife habitat conservation area review procedures.

A. Habitat Management Plan. If the Department's maps, sources, or field investigations indicate that the proposed project area is located within 300 feet of a known or suspected fish or wildlife habitat conservation area, then the applicant shall submit a Habitat Management Plan prepared by a qualified Fisheries Biologist or Wildlife Biologist. The requirement to provide a habitat conservation plan for habitat conservation areas may be waived if the Department determines that there are no potential direct or indirect impacts on designated species or habitats that would result from the proposed Development Activity. Habitat Management Plans shall comply with the requirements established in EMC 14.50.080, Appendix A.

14.50.050 Allowed activities.

A. The following activities may be permitted in habitat conservation areas and/or their Buffers when all reasonable measures have been taken to avoid and mitigate adverse effects on species and habitats and a net loss of habitat functions will not occur. In order to verify the following conditions, a Habitat Management Plan meeting the requirements of EMC 14.50.080, Appendix A must be submitted.

1. Stream Erosion Control Measures. New or replacement stream erosion control measures shall be subject to the following standards:
 - a. The proposal complies with the provisions set forth in EMC Chapter 14.110.
 - b. The required Habitat Management Plan demonstrates the following:
 - i. Natural stream processes will be maintained. The project will not result in increased beach erosion or alterations to, or loss of, stream substrate within one-quarter mile of the site.
 - ii. The stream erosion control measure will not adversely impact fish or wildlife habitat conservation areas or associated Wetlands.
2. Docks and launching ramps. Construction, reconstruction, repair, and maintenance of docks and public or private launching ramps are subject to all of the following:
 - a. The dock or ramp is located and oriented and constructed in a manner that minimizes adverse effects on water quality, movement of aquatic and terrestrial life, ecological processes, spawning habitat, and Wetlands.
 - b. Docks and ramps shall meet or exceed all relevant state and federal permit requirements.
3. Roads, Trails, Bridges, and Rights-of-Way. Construction of trails, roadways, bridges, and culverts may be allowed subject to the following standards:
 - a. There is no other feasible alternative route with less impact on the environment.
 - b. The crossing minimizes interruption of downstream movement of wood, ice, and gravel and the movement of all fish and wildlife.
 - c. Stream crossings, where necessary, shall only occur as near to the perpendicular with the stream as possible and be limited to the minimum width necessary.

d. Road bridges and culverts are designed according to the latest versions of the Washington Department of Fish and Wildlife Water Crossing Design Guidelines (Washington Department of Fish and Wildlife) the Anadromous Salmonid Passage Facility Design guidelines (National Marine Fisheries Service).

e. Trails and associated viewing platforms shall be made of pervious materials.

4. Utility Facilities. New utility lines and facilities are permitted to cross habitat conservation areas if they comply with the following standards

a. Avoid fish and wildlife habitat conservation areas to the maximum extent possible.

b. Cross at an angle greater than 60 degrees to the centerline of the channel in streams or perpendicular to the channel centerline whenever boring under the channel is not feasible.

c. Crossings are contained within the footprint of an existing road or utility crossing where possible.

d. Avoid paralleling the stream or following a down-valley course near the channel.

e. Do not increase or decrease the natural rate of shore migration or channel migration.

f. Bore beneath the scour depth and hyporheic zone of the water body and channel migration zone (CMZ) where feasible.

5. Public Flood Protection Measures. New public flood protection measures and expansion of existing facilities may be approved, subject to the Department's review and approval of a Habitat Management Plan.

6. Instream Structures. New instream structures (e.g., such as, but not limited to, high flow bypass, sediment ponds, instream ponds, retention and detention facilities, dams, weirs, etc.) shall be allowed only as part of an approved Mitigation or Restoration project or watershed basin plan approved by the Department and upon acquisition of any required state or federal permits. The structure shall be designed to avoid modifying flows and water quality in ways that may adversely affect critical fish species. Proposals for placement of water quality, water quantity, or other instruments or structures within a stream to gather data, or as a mitigation measure, shall be exempt from the provisions of this title upon review and approval by the Department.

7. Stormwater Conveyance Facilities. Conveyance structures whose sole purpose is to convey stormwater already treated for quality, or water bypassed around water quality treatment facilities pursuant to an approved stormwater plan, may be constructed subject to the following standards:

a. No other feasible alternatives with less impact exist;

b. Mitigation for impacts is provided;

c. Stormwater conveyance facilities shall incorporate fish habitat features;

d. Vegetation shall be maintained and, if necessary, added adjacent to all open channels and ponds in order to retard erosion, filter out sediments, and shade the water.

8. On-Site Sewage Systems and Wells.

a. New on-site sewage systems and individual wells are permitted if accessory to an approved structure.

b. Repairs to failing on-site sewage systems associated with an existing structure shall be accomplished by utilizing one of the following methods that result in the least impact:

i. Connection to an available public sewer system;

ii. Replacement with a new on-site sewage system located in a portion of the site that has already been disturbed by development and is located landward as far as possible, provided the proposed sewage system is in compliance with the provisions in EMC Chapter 14.80; or

iii. Repair to the existing on-site septic system.

B. The activities listed below are allowed in habitat conservation areas and their Buffers, and do not require submission of a Habitat Management Plan, except where such activities would result in a loss of the functions and values of habitat conservation areas or Buffers.

1. Vegetation Removal, Disturbance, and Introduction. Limited vegetation removal shall be allowed subject to EMC Section 18.90.180 - Tree Preservation and the following standards in paragraphs a-b:

a. Hazard trees may be cut; provided, that:

i. The applicant submits a report from a certified arborist, licensed architect, or professional forester that documents the hazard and provides a replanting schedule for the replacement trees and receives written approval from the City authorizing the tree removal;

ii. Tree cutting shall be limited to limbing and crown thinning, unless otherwise justified by the landowner's expert. Where limbing or crown thinning is not sufficient to address the hazard, trees should be topped to remove the hazard rather than cut at or near the base of the tree. All vegetation cuttings (tree stems, branches, tops, etc.) shall be left within the habitat area or Buffer unless removal is warranted due to the potential for disease transmittal to other healthy vegetation;

iii. The landowner shall replace any trees that are felled or topped with new trees at a ratio of two replacement trees for each tree felled or topped. Tree species that are native and indigenous to the site shall be used;

iv. Hazard trees determined to pose an imminent threat or danger to public health or safety, or to public or private property, or serious environmental degradation may be removed or topped by the landowner prior to receiving written approval from the Department; provided, that within 14 days following such action, the landowner shall submit the necessary report and replanting schedule demonstrating compliance with subsections (B)(1)(a)(i) through (iii) of this section.

b. Trimming of vegetation for purposes of providing a View Corridor will be allowed. The trimming is limited to a maximum 20-foot width and the benefit to fish and wildlife habitat may not be reduced. No more than 30 percent of the live crown may be removed. Trimming shall be limited to hand pruning of branches and vegetation and does not include felling, topping, or the removal of trees.

2. Fencing. Fencing shall be placed in such a manner as to maintain wildlife movement corridors and not create any fish passage blockages. The Department shall approve the location, type, and height of any proposed fencing.

14.50.060 Alteration of Watercourses

Alteration of Watercourses. Any alteration of a watercourse shall comply with the following standards:

1. The City will notify adjacent communities and the Washington State Department of Ecology prior to any alteration or relocation of a watercourse proposed by the applicant and submit evidence of such notification to the Federal Insurance Administration.

2. The City shall require that maintenance be provided within the altered or relocated portion of said watercourse, so that the flood-carrying capacity is not diminished. Therefore, if the maintenance program calls for future cutting of planted Native Vegetation used in performing the alteration, the system shall be oversized at the time of construction to compensate for said vegetation growth or any other natural factor that may need future maintenance.

3. Alterations and relocations, including stabilization projects, shall not degrade fish habitat and shall be subject to the following provisions:

- a. Structures that cross all watercourses and water bodies shall meet fish habitat requirements of the Washington Department of Fish and Wildlife.
- b. Any culverts that are used on fish-bearing watercourses shall be arch/bottomless culverts or equivalent that provide comparable fish protection, and must meet fish habitat requirements of the latest edition of Washington Department of Fish and Wildlife's Design Manual for Culverts.
- c. Bridges or other crossings shall allow for uninterrupted downstream movement of wood and gravel, be as close to perpendicular to the watercourse as possible, and be designed to minimize fill and to pass the Base Flood flows.
- d. Watercourse alterations shall maintain natural meander patterns, channel complexity, and floodplain connectivity. Where feasible, such characteristics shall be restored as part of the watercourse alteration.
- e. The applicant shall identify the channel migration zone for the watercourse at the project site and for a reasonable reach upstream and downstream of the site, and shall not undertake actions as part of the alteration that would in any way inhibit movement of the channel.
- f. Existing culverts that do not meet fish habitat requirements shall be removed or replaced as part of the approved watercourse alteration project.
- g. Watercourse alteration projects shall not result in a fish blockage of side channels. Known fish barriers into side channels shall be removed as part of the approved watercourse alteration project.
- h. For any watercourse alteration of a Type S or F water pursuant to EMC 14.50.020.D whose channel is subject to migration, bioengineered (soft) armoring of streambanks is required to allow for woody debris recruitment, gravels for spawning, and creation of side channels. The bioengineering technique used must be designed in accordance with the latest edition of Washington Department of Fish and Wildlife's Integrated Streambank Protection Guidelines.

4. The project Engineer shall design the watercourse alteration so the activity does not increase the water surface elevation (zero-rise); decrease the capacity, storage, and conveyance of the watercourse; or cause an adverse impact to adjacent, cross-channel, or upstream or downstream properties. (Ord. 17-492 § 2 (Exh. A); Ord. 02-200 § 2).

14.50.070 Mitigation requirements.

A. Mitigation. Compensatory Mitigation is required for all unavoidable alterations to fish and wildlife habitat conservation areas or their Buffers. Mitigation of alteration to habitat areas shall achieve equivalent or greater biological functions. Mitigation shall address each functional attribute affected by the alteration to achieve functional equivalency or improvement on a per function basis. Mitigation elements to be addressed may include, but are not limited to: Restoration of previously Degraded areas and key habitat features, Restoration of Riparian vegetation communities to provide shade and large woody debris, addition of large woody debris, and installation of upland habitat features. All projects must first demonstrate compliance with EMC 14.10.070.B prior to development of Compensatory Mitigation plans.

B. Type of mitigation required. In determining the extent and type of mitigation required, the Department may consider all of the following:

1. The ecological processes that affect and influence habitat structure and function within the watershed or sub-basin;
2. The individual and cumulative effects of the action upon the functions of the Critical Area and associated watershed;

3. Observed or predicted trends regarding the gains or losses of specific habitats or species in the watershed, in light of natural and human processes;
4. The likely success of the proposed mitigation measures;
5. Effects of the mitigation actions on neighboring properties; and
6. Opportunities to implement Restoration actions formally identified by an adopted shoreline Restoration plan, watershed planning document prepared and adopted pursuant to Chapter [90.82](#) RCW, a salmonid recovery plan or project that has been identified on the Salmon Recovery Board Habitat Project List or by the Washington State Department of Fish and Wildlife as essential for fish and wildlife habitat Enhancement.

C. Location. Compensatory Mitigation shall be provided on-site or off-site in the location that will provide the greatest ecological benefit to the species or habitats affected and have the greatest likelihood of success. Mitigation shall occur as close to the impact site as possible, within the same sub-basin, and in a similar habitat type as the permitted alteration. If the applicant submits a watershed- or landscape-based analysis that demonstrates mitigation within an alternative sub-basin of the same watershed would have greater ecological benefit, then the Director may approve the demonstrated alternate mitigation.

D. Mitigation plans. When required by this chapter, the applicant shall submit a fish and wildlife habitat conservation area mitigation plan meeting the requirements of this Chapter.

14.50.080. Appendix.

APPENDIX A

HABITAT MANAGEMENT PLAN

A. A Habitat Management Plan shall, at a minimum, include the following:

1. The general Critical Areas report requirements.
2. Identification of any endangered, threatened, sensitive, or candidate species that have a primary association with habitat on the project area;
3. Map showing the location of the ordinary high water mark and locations of wildlife habitat conservation area(s) and their Buffers;
4. The vegetative, faunal, topographic, and hydrologic characteristics of the habitat conservation area;
5. A discussion of any federal, state, or local special management recommendations, including Washington Department of Fish and Wildlife habitat management recommendations, that have been developed for species or habitat located on or adjacent to the project area;
6. A detailed discussion of the direct and/or indirect potential impacts on the habitat conservation area by the project. Such discussion shall include a discussion of the ongoing management practices that will protect habitat after the project site has been developed;
7. Mitigation plan, if the activity will result in unavoidable impacts to habitat conservation areas.
Mitigation measures may include:
 - a. Prohibition or limitation of use and development activities within the habitat conservation area;
 - b. Retention of vegetation and/or re-vegetation of areas/habitats critically important to species;
 - c. Special construction techniques;
 - d. Implementation of erosion and sediment control measures;
 - e. Habitat Restoration or Enhancement, i.e., fish passage barrier removal;
 - f. Seasonal restrictions on construction activities on the subject property;
 - g. Clustering of development activities on the subject property; and/or
 - h. Any other requirements and/or recommendations from federal, state, or local special management recommendations, including the Washington State Department of Fish and Wildlife's habitat management guidelines.

Chapter 14.60**AQUIFER RECHARGE AND WELLHEAD PROTECTION AREAS**

Sections:

- 14.60.010 Purpose.
- 14.60.020 Critical Aquifer Recharge Areas identification.
- 14.60.030 Critical Aquifer Recharge Areas review procedures.
- 14.60.040 Critical Aquifer Recharge Areas standards.

14.60.010 Purpose.

The purpose of this chapter is to protect Critical Aquifer Recharge Areas from degradation or depletion resulting from new or changed land use activities. Due to the exceptional susceptibility and vulnerability of groundwater underlying aquifer recharge areas to contamination and the importance of such groundwater as sources of public water supply, it is the intent of this chapter to safeguard groundwater resources and Wellhead Protection Areas by mitigating or precluding future discharges of any Contaminant from new land use activities. (Ord. 02-200 § 2).

14.60.020 Critical Aquifer Recharge Areas identification.

A. General. Critical Aquifer Recharge Areas are areas that have a critical recharging effect on groundwater used for potable water supplies and/or that demonstrate a high level of susceptibility or vulnerability to groundwater contamination from land use activities. These areas include the following:

1. Aquifer Recharge Areas. The boundaries of the two highest DRASTIC zones that are rated 180 and above on the DRASTIC index range, as identified in Map of Groundwater Pollution Potential, Edgewood, Washington, National Water Well Association, U.S. Environmental Protection Agency;
2. Wellhead Protection Areas. Wellhead Protection Areas that lie within the 10-year time of travel zone boundary of a group A public water system well, as delineated by the water system purveyor or its designee, pursuant to WAC 246-290-135; and
3. Sole Source Aquifers. Sole source aquifers are areas that have been designated by the U.S. Environmental Protection Agency pursuant to the Federal Safe Water Drinking Act. As of the effective date of this title, there are no designated sole source aquifers within city limits.

14.60.030 Critical Aquifer Recharge Areas review procedures.

A. General Requirements

1. The City's Critical Aquifer Recharge Areas map provides an indication of where Critical Aquifer Recharge Areas are located within the city and the map is updated as necessary.
2. Any proposed development located within protection Critical Aquifer Recharge Areas shall comply with the standards set forth in EMC Chapter 14.60.
3. Any hazardous uses shall require the submittal of a Hydrogeologic Assessment, as set forth in subsection (B) of this section.
4. The Department may waive Critical Area protective measure provisions contained in EMC Chapter 14.10, as deemed appropriate by the Director and can be shown to meet the requirements associated with Best Available Science, if required.

B. Hydrogeologic Assessment.

1. The Hydrogeologic Assessment shall be prepared, signed, and dated by a state licensed Geologist or Hydrogeologist.

2. The Hydrogeologic Assessment shall be submitted in the form of a report detailing the subsurface conditions, the design of a proposed land use action, and the facilities operation which indicates the susceptibility and potential for contamination of groundwater supplies. The Hydrogeologic Assessment shall, at a minimum, include the general Critical Area report requirements of EMC Chapter 14.10 in addition to the following fifteen (15) items listed in paragraphs a-o:

- a. Information sources;
- b. Geologic setting – includes well logs or borings used to identify information;
- c. Background water quality;
- d. Groundwater elevations;
- e. Location and depth to perched water tables;
- f. Recharge potential of a Facility site, i.e., the permeability and transmissivity;
- g. Groundwater flow direction and gradient;
- h. Current available data on wells located within one-quarter mile of the site;
- i. Current available data on any spring within one-quarter mile of the site;
- j. Surface water location and recharge potential;
- k. Water source supply to a Facility, e.g., a high capacity well;
- l. Any sampling schedules necessary;
- m. Discussion of the effects of the proposed project on the groundwater resource;
- n. Discussion of potential mitigation measures, should it be determined that the proposed project will have an adverse impact on groundwater resources; and
- o. Any other information as required by the TPCHD, including information required under Washington Department of Ecology Publication 97-30.

C. Storage Tank Permits. In addition to the requirements set forth in this title, the following agencies also have the authority to regulate the installation, repair, replacement, or removal of any UST:

1. The Pierce County Fire Prevention Bureau regulates and authorizes permits for all USTs, pursuant to the International Fire Code (Article 79) and this chapter.
2. The Washington Department of Ecology regulates and authorizes permits for all USTs (Chapter 173-360 WAC).
3. The TPCHD regulates and authorizes permits for the removal of any UST (Pierce County Code, Chapter 8.34). (Ord. 02-200 § 2).

14.60.040 Critical Aquifer Recharge Areas standards.

A. General. All Regulated Activities that are not exempt or prohibited under the provisions of this chapter shall ensure sufficient groundwater recharge. In order to achieve sufficient groundwater recharge, the applicant shall comply with the City's adopted stormwater manual, EMC Chapter 13.05, and demonstrate that the total post-development infiltration rate for the project area will be equal to or better than the predevelopment rate.

B. Prohibited Uses. Landfills (other than inert and demolition landfills), Class I, III, and IV underground injection wells, metals mining, wood treatment facilities, pesticide manufacturing, petroleum refining facilities (including

distilled petroleum facilities), the storage of large volumes of petroleum products, and other uses or activities determined by the Department to have a significant adverse impact on ground water are prohibited within Critical Aquifer Recharge Areas.

C. Exemptions. In addition to the general exemptions listed in EMC Section 14.30.030, the following uses or activities are exempt from the requirements of this chapter:

1. Sewer lines and appurtenances;
2. Biosolids and Sludge Land Application Sites; provided, that these activities comply with the requirements established in Chapters 173-200, 173-216, and 173-304 WAC; and
3. Single-family and two-family dwellings and associated accessory structures.

D. Agricultural Activities. New Agricultural Activities that do not involve hazardous substance handling or application are allowed within an aquifer recharge or Wellhead Protection Area subject to the following:

1. The applicant is required to submit a farm management plan prepared by the USDA, NRCS, Pierce County Conservation District, or Washington State University, Cooperative Extension Office, that certifies that water quality and quantity within the aquifer recharge area is maintained. The farm management plan shall at a minimum address the following:
 - a. The limits of the proposed Agricultural Activities.
 - b. The proposed scope of Agricultural Activities, including the use of any pesticides, fertilizers, or other chemicals.
 - c. The existing nitrate levels on the site and any proposed increases in nitrate levels.
2. Integrated pest management (IPM) practices for pest control and BMPs for the use of fertilizers, as described by the Washington State University, Pierce County Cooperative Extension Office, shall be utilized.
3. Nitrate levels at down-gradient property line shall not exceed 2.5 mg/L or, if the background nitrate concentration exceeds 2.5 mg/L, that the concentration will not be increased more than 0.1 mg/L.
4. Additional protective measures may be required if deemed necessary by the Department or TPCHD to protect public health or safety.

E. Nonhazardous Uses. Subdivision of land as defined in EMC Title 16, residential structures housing three or more units, and all commercial and industrial sites or activities that do not include or involve hazardous substance processing or handling in Critical Aquifer Recharge Areas are allowed subject to the following standards:

1. Stormwater quality treatment and flow control shall be provided in conformance with the City's adopted stormwater management manual.
2. Floor drains shall not be allowed to drain to the stormwater system and must be designed and installed to meet the Uniform Plumbing Code (UPC) Section 303.
3. If any roof venting carries a Contaminant, then the portion of the roof draining from this area must go through pretreatment pursuant to UPC Section 304(b).
4. All nonresidential vehicle washing must be self-contained or be discharged to a sanitary sewer system, if approved by the sewer utility, and is subject to UPC Sections 708 and 711.
5. Integrated pest management (IPM) practices for pest control and BMPs for the use of fertilizers as described by the Washington State University, Pierce County Cooperative Extension Office, shall be utilized.

6. For new or changes in Regulated Activities served by on-site sewage systems, the applicant must demonstrate to the TPCHD that nitrate levels at the down-gradient property line will not exceed 2.5 mg/L or that if the background nitrate concentration exceeds 2.5 mg/L the concentration will not be increased more than 0.1 mg/L.

7. Additional protective measures may be required if deemed necessary by the Department or TPCHD to protect public health or safety.

F. Hazardous Uses – General. Hazardous substance processing or handling, hazardous waste treatment and storage facilities, Animal Containment Areas, and solid waste facilities that require a solid waste handling permit from the TPCHD, requiring approval from the City, shall be allowed only in Critical Aquifer Recharge Areas subject to review and approval of a Hydrogeologic Assessment by the Department and review by the TPCHD. The Department has the authority to apply whatever standards deemed necessary to mitigate any negative impacts that may be associated with the proposed development and will consider comments by TPCHD.

G. Hazardous Uses – Storage Tanks. In addition to the requirement to submit a Hydrogeologic Assessment, the following standards apply to storage tanks in Critical Aquifer Recharge Areas:

1. Underground Tanks. All new underground storage facilities used or to be used for the underground storage of hazardous substances or hazardous wastes shall be designed and constructed so as to:

- a. Prevent releases due to corrosion or structural failure for the operational life of the tank;
- b. Be protected against corrosion, constructed of noncorrosive material, steel clad with a noncorrosive material, or designed to include a secondary containment system to prevent the release or threatened release of any stored substance;
- c. Use material in the construction or lining of the tank which is compatible with the substance to be stored; and
- d. The installation of any UST shall also be subject to other state and local permit requirements.

2. Aboveground Tanks.

- a. No new aboveground storage Facility or part thereof shall be fabricated, constructed, installed, used, or maintained in any manner which may allow the release of a hazardous substance to the ground, groundwater, or surface water within any Critical Aquifer Recharge Areas.
- b. A new aboveground tank that will contain a hazardous substance will require both a double-walled tank and a secondary containment system separate from the tank that will hold 110 percent of the tank's capacity. The secondary containment system or dike system must be designed and constructed to contain material stored in the tank(s). (Ord. 16-482 § 2 (Exh. C); Ord. 02-200 § 2).

Chapter 14.70**VOLCANIC HAZARD AREAS**

Sections:

- 14.70.010 Purpose.
- 14.70.020 Volcanic Hazard Areas.
- 14.70.030 Volcanic Hazard Area review procedures.
- 14.70.040 Volcanic Hazard Area standards.

14.70.010 Purpose.

At over 14,411 feet high, Mount Rainier dominates the skyline of the southern Puget Sound region. This glacier-clad mountain is a dormant volcano capable of generating large floods and lahars which have historically reached the floors of the lowlands south of the City of Seattle and out to Commencement Bay in the Port of Tacoma, spewing ash from pyroclastic eruptions. The purpose of this chapter is to promote the public health, safety, and general welfare of the citizens of Edgewood by providing standards that minimize the loss of life that may occur as a result of volcanic events emanating from Mount Rainier. (Ord. 02-200 § 2).

14.70.020 Volcanic Hazard Areas.

A. General. Volcanic Hazard Areas are areas subject to pyroclastic flows, lava flows, and inundation by Debris Flows, Mudflows, or related flooding resulting from geologic and volcanic events on Mount Rainier.

B. Volcanic Hazard Area Categories. Volcanic Hazard Areas are areas that have been historically inundated by Case I, Case II, or Case III lahars or other types of Debris Flow; affected by pyroclastic flows, pyroclastic surges, lava flows, or ballistic projectiles in future eruptions; or are located in other drainages expected to be inundated by a future Case I, Case II, or Case III Debris Flow. Volcanic Hazard Areas are classified into the following categories:

1. Inundation Zone for Case I Lahars. Areas that could be affected by cohesive lahars that originate as enormous avalanches of weak chemically altered rock from the volcano. Case I lahars can occur with or without eruptive activity. The average reoccurrence rate for Case I lahars on Mount Rainier is about 500 to 1,000 years.
2. Inundation Zone for Case II Lahars. Areas that could be affected by relatively large non-cohesive lahars, which most commonly are caused by the melting of snow and glacier ice by hot rock fragments during an eruption, but which can also have a non-eruptive origin. The average time interval between Case II lahars from Mount Rainier is near the lower end of the 100- to 500-year range, making these flows analogous to the so-called "100-year flood" commonly considered in engineering practice.
3. Inundation Zone for Case III Lahars. Areas that could be affected by moderately large debris avalanches or small non-cohesive lahars, glacial outburst floods, or other types of Debris Flow, all of non-eruptive origin. The average time interval between Case III lahars at Mount Rainier is about one to 100 years.
4. Pyroclastic Flow Hazard Zone. Areas that could be affected by pyroclastic flows, pyroclastic surges, lava flows, and ballistic projectiles in future eruptions. During any single eruption, some drainages may be unaffected by any of these phenomena, while other drainages are affected by some or all phenomena. The average time interval between eruptions of Mount Rainier is about 100 to 1,000 years.

C. Travel Time Zones. The ability to evacuate people from within a Volcanic Hazard Area correlates to the distance from the source of an event, i.e., those areas closest to the event will have less time to evacuate than those areas farther away from the source of an event. The amount of time that is anticipated for a Debris Flow, lahar, flood, or avalanche to travel geographically has been classified into the following travel time zones:

1. Time Zone A. Time Zone A is an estimated one-hour travel distance from the source of the event.

2. Time Zone B. Time Zone B is an estimated one and one-half hour travel distance from the source of the event.
3. Time Zone C. Time Zone C is an estimated two-hour travel distance from the source of the event.
4. Time Zone D. Time Zone D is an estimated two hours or greater travel distance from the source of the event. (Ord. 02-200 § 2).

14.70.030 Volcanic Hazard Area review procedures.

A. The City's Critical Areas Atlas – Volcanic Hazard Area Map provides an indication of where Volcanic Hazard Areas are located within the city.

B. The Department will complete a review of the Volcanic Hazard Area maps for any development proposal to determine whether the proposed project area for a regulated activity falls within a Volcanic Hazard Area.

C. When the Department's maps or sources indicate that the proposed project area for a regulated activity is located within a Volcanic Hazard Area, the Department shall apply the standards for Regulated Activities in Volcanic Hazard Areas, as set forth in EMC Chapter 14.70.040.

14.70.040 Volcanic Hazard Area standards.

The following standards apply within the inundation zones for Case I, II, and III lahars and within the pyroclastic flow hazard zone (refer to Table 14.70.040):

- A. Bonus densities, as set forth in EMC 18.90.080, Housing incentives program, shall be prohibited.
- B. All Critical Facilities shall be prohibited, except sewer collection facilities and any other utilities that are located underground or not likely to cause harm to people or the environment if inundated by a lahar.
- C. Special Occupancy Structures, as defined in EMC Section 14.20.107, are subject to the following:
 1. Travel Time Zone A. Special Occupancy Structures located within the Travel Time Zone A area shall be limited to a maximum 100-person occupancy.
 2. Travel Time Zone B. Special Occupancy Structures located within the Travel Time Zone B area shall be limited to a maximum 500-person occupancy.
 3. Travel Time Zone C. Special Occupancy Structures located within the Travel Time Zone C area shall be limited to a maximum 1,000-person occupancy.
 4. Travel Time Zone D. Special Occupancy Structures located within the Travel Time Zone D area shall be limited to a maximum 5,000-person occupancy.

Table 14.70.040 Volcanic Hazard Area Standards

Facility/Occupancy List	Case I Lahar Inundation Zone	Case II Lahar Inundation Zone	Case III Lahar Inundation Zone	Pyroclastic Flow Hazard Zone
Bonus Densities ⁽¹⁾	Not Allowed	Not Allowed	Not Allowed	Not Allowed
Critical Facilities ⁽²⁾	Not Allowed	Not Allowed	Not Allowed	Not Allowed
Special Occupancies ⁽³⁾	In Time Travel Zone A – Limited to 100 person occupant load. In Time Travel Zone B – Limited to 500 person occupant load. In Time Travel Zone C – Limited to 1,000 person occupant load.			

Facility/Occupancy List	Case I Lahar Inundation Zone	Case II Lahar Inundation Zone	Case III Lahar Inundation Zone	Pyroclastic Flow Hazard Zone
	In Time Travel Zone D – Limited to 5,000 person occupant load.			
Other Occupancies	No Limitation	No Limitation	No Limitation	No Limitation

(1) Bonus density as set forth in EMC Chapter 18.90.080, Housing incentives program.

(2) Essential facility as defined in EMC Chapter 14.20.

(3) Special Occupancy Structures as defined in EMC Chapter 14.20

(Ord. 02-200 § 2).

Chapter 14.80**FLOOD HAZARD AREAS**

Sections:

- 14.80.010 Purpose.
- 14.80.020 Flood Insurance Study Adoption
- 14.80.030 Definitions.
- 14.80.040 Flood Hazard Areas.
- 14.80.050 Flood Hazard Area review procedures.
- 14.80.060 Flood Hazard Area standards.
- 14.80.070 Variances to Flood Hazard Areas
- 14.80.080 Appendices.

14.80.010 Purpose.

The purpose of this chapter is to promote the public health, safety, and general welfare of the citizens of Edgewood. The standards contained in this chapter are intended to minimize public and private losses due to flood conditions in Flood Hazard Areas and provide special criteria necessary for Regulated Activities located within Flood Hazard Areas of the city. The following statements describe the purpose of this chapter:

- A. Protect human life and health;
- B. Minimize expenditure of public money and costly flood control projects;
- C. Minimize the need for rescue and relief efforts associated with flooding;
- D. Minimize prolonged business interruptions;
- E. Minimize damage to public infrastructure, facilities and utilities;
- F. Minimize damage to critical fish and wildlife habitat areas;
- G. Minimize net loss of ecological functions of floodplains;
- H. Ensure that potential buyers are notified that property is in a Flood Hazard Area;
- I. Ensure that those who occupy Flood Hazard Areas assume responsibility for their actions; and
- J. Qualify Edgewood for participation in the National Flood Insurance Program, thereby giving the citizens of Edgewood the opportunity to purchase flood insurance with particular emphasis to those in Flood Hazard Areas.

14.80.020 Flood Insurance Study Adoption

The areas of special flood hazard identified by the Federal Insurance Administration in a scientific and engineering report entitled "The Flood Insurance Study for Pierce County, Washington and Incorporated Areas" dated March 7, 2017, with accompanying FIRMs and any map amendments or corrections are hereby adopted by reference and declared to be a part of this title. The Flood Insurance Study and FIRMs are on file at Edgewood City Hall, 2224 104th Avenue East, Edgewood, Washington, 98371. The City may add or delete land from areas of special flood hazard or revise Base Flood elevations, utilizing best-available information for flood hazard identification in accordance with federal regulations.

14.80.030 Definitions.

A. Refer to Chapter 14.20 for definitions of any word or phrase not otherwise contained herein. For this Chapter (EMC 04.80) the definitions listed below shall apply:

1. *Appeal* – a request for a review of the interpretation of any provision of this chapter, per EMC 14.10.110, or request for a Flood Hazard Area Variance per EMC 14.80.070.
2. *Area of Shallow Flooding* – areas designated as AO or AH zones on the FIRM(s). AO zones are characterized as sheet flows, having base flood depths that range from one to three feet above the natural ground, where a clearly defined channel does not exist, the path of flooding is unpredictable and indeterminate, and velocity flow may be evident. AH zones indicate similar depth ponding, shown with standard base flood elevations on the FIRM(s).
3. *Area of Special Flood Hazard* – land in the floodplain within a community subject to a one percent or greater chance of flooding in any given year. Designation on FIRM(s) always includes the letter A or V.
4. *Basement* – any area of the building having its floor sub-grade (below ground level) on all sides, for the purposes of this title.
5. *Breakaway Wall* – a wall that is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces, without causing damage to the elevated portion of the building or supporting foundation system.
6. *Critical Facilities* – See EMC 14.20 B.22. For floodplain management purposes, Essential public facilities as defined under EMC 18.20.080 and 18.100.050 are considered *Critical Facilities*.
7. *Development* – any human-induced change to improved or unimproved real estate, including but not limited to: the construction of buildings or other structures, placement of a manufactured home/mobile home, mining, dredging, clearing, filling, grading, paving, excavation, drilling operations, storage of equipment or materials located within an area of special flood hazard, or activities otherwise governed by EMC Title 16, Subdivisions.
8. *Elevated Building* – a non-basement building that has its lowest elevated floor raised above ground level by foundation walls, shear walls, posts, piers, pilings, or columns.
9. *Existing Manufactured Home Park or Subdivision* – a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed before the effective date of the adopted floodplain management regulations.
10. *Expansion to an Existing Manufactured Home Park or Subdivision* – the preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).
11. *Flood or Flooding* – a general and temporary condition of partial or complete inundation of normally dry land areas from:
 - a. The overflow of inland or tidal waters; or
 - b. The unusual and rapid accumulation of runoff of surface waters from any source.
12. *Flood Insurance Study (FIS)* – the official report provided by the Federal Insurance Administration (FIA) that includes flood profiles, FIRM(s), and the water surface elevation of the Base Flood.
13. *Increased Cost of Compliance (ICC)* – a flood insurance claim payment up to \$30,000 directly to a property owner for the cost to comply with floodplain management regulations after a direct physical loss

caused by a flood. Eligibility for an ICC claim can be through a single instance of “substantial damage” or as a result of a “cumulative substantial damage.” (More information can be found in FEMA ICC Manual 301.)

14. *Manufactured Home or Mobile Home* – a structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. For floodplain management purposes, the term “manufactured home/mobile home” also includes park trailers, travel trailers, and other similar recreational vehicles placed on a site for greater than 180 consecutive days. For insurance purposes, the term “manufactured home/mobile home” does not include park trailers, travel trailers, recreational vehicles, or other similar vehicles.
15. *Manufactured Home Park or Subdivision* – a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.
16. *New Construction* – structures for which the Start of Construction commenced on or after the following:
 - a. For the purposes of determining flood insurance rates, the effective date of an initial FIRM (i.e., August 19, 1987, or specifically for Panel 350 August 4, 1988), and includes any subsequent improvements to such structures.
 - b. For floodplain management purposes, March 7, 2017 (the effective date of this floodplain management ordinance), including any subsequent improvements to such structures.
17. *New Manufactured Home Park or Subdivision* – a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after March 7, 2017 (the effective date of this floodplain management regulation).
18. *Recreational Vehicle (RV)* – a vehicle built on a single chassis, 400 square feet or less when measured at the largest horizontal projection, designed to be self-propelled or permanently towable by a light duty truck, and designed primarily not for use as a permanent dwelling but as a temporary living quarters for recreational, camping, travel, or seasonal use.
19. *Start of Construction* – includes Substantial Improvement, and means the date the building permit was issued, provided the actual Start of Construction, repair, reconstruction, placement or other improvement was within 180 days of the permit date. The “actual start” means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a Substantial Improvement, the “actual Start of Construction” means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.
20. *Structure* – a walled and roofed building, including a gas or liquid storage tank that is principally above ground.
21. *Substantial Improvement* – any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds fifty (50) percent of the market value of the structure either:
 - a. before the improvement or repair is started; or
 - b. if the structure has been damaged and is being restored, before the damage occurred. For the purposes of this definition “Substantial Improvement” is considered to occur when the first

alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure.

The term "Substantial Improvement" does not, however, include either:

- a. Any project for improvement of a structure to correct pre-cited existing Violations of state or local health, sanitary, or safety code specifications which have been previously identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions; or
- b. Any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places; provided, that the alteration will not preclude the structure's continued designation as a historic structure.

22. *Variance* – a grant of relief from the requirements of this chapter that permits construction in a manner that would otherwise be prohibited, per EMC 14.80.070.
23. *Violation* – See 14.20 B.88. With regard to floodplain management, projects without an Elevation Certificate, other certifications, or other evidence of compliance required in EMC Chapter 14.80 are presumed to be in Violation until such time as said documentation is provided.
24. *Water Dependent* – a structure for commerce or industry that cannot exist in any other location and is dependent on the water by reason of the intrinsic nature of its operations.

14.80.040 Flood Hazard Areas.

Edgewood regulates the following Flood Hazard Areas:

A. Potential Flood Hazard Areas.

1. Potential Flood Hazard Areas, as depicted on the Critical Areas Atlas – Flood Hazard Area Map, include:

- a. Detailed Study Areas.

- i. FEMA Flood Insurance Rate Map (FIRM) and Floodway Map AE and AH zones.
- ii. Areas within 300 feet horizontal distance from the Base Flood elevation established for the mapped AE and AH zones.
- iii. Areas within five feet of vertical height from the Base Flood elevation established for the mapped AE and AH zones.

- b. Unstudied Areas, FEMA Flood Insurance Rate Map (FIRM) A zones and shaded X zones, and areas within 300 feet horizontal distance from said mapped areas.

- c. Natural Waters or Watercourse. Areas within five feet of vertical height above the ordinary high water mark of an identified natural watercourse.

- d. Groundwater Flooding Areas. Areas within 300 feet horizontal distance from a mapped groundwater flooding area.

- e. Potholes. Areas not identified as a mapped Flood Hazard Area as described above, but within 10 feet of vertical relief from the bottom of an identified pothole or within two feet of vertical relief of a potential surface water spillway or other type of outlet. Potholes may be identified by City topographic mapping, field survey, or site inspections.

- f. Channel Migration Zones (CMZs). Channel migration zones shall apply only to those watercourses specifically identified by the City or listed in subsection (B)(4) of this section. In those areas where detailed CMZ studies have been completed and accepted by the Department, additional horizontal and vertical review threshold criteria (i.e., 300 feet horizontal and five feet vertical) shall not apply.

2. The Critical Areas Atlas – Flood Hazard Areas Map may not show all potential Flood Hazard Areas that may be necessary for a specific site analysis. The Department may make interpretations, where needed, as to the approximate location of the boundaries of potential Flood Hazard Areas. When there is a conflict between the elevations and the mapped potential Flood Hazard Area boundaries, the elevations shall govern.

3. Where there is insufficient information shown on the potential Flood Hazard Area maps, the Department may require the applicant to verify that the site is out of the Flood Hazard Area using the Flood Hazard Area review procedures set forth in EMC Chapter 14.80.

B. Floodway. A Floodway is an extremely hazardous area due to the depth or velocity of floodwaters, which carry debris, potential projectiles, and have erosion potential. The following areas are regulated by the City as Floodways:

1. Regulatory Floodway. Regulatory Floodway designated by Flood Hazard Area maps.
2. Deep or Fast Flowing Water Areas. Areas of deep or fast flowing water shall be regulated as a Floodway. Based on the criteria set forth in EMC Chapter 14.80, the Department shall make the determination after review and approval of applicant's analysis of whether the project site falls within the Floodway area based on deep or fast flowing waters.
3. Potholes and Shaded X Zones. That portion of a pothole and zone area that is three feet or greater in depth shall be regulated as a Floodway.
4. Channel Migration Zone (CMZ).
 - a. CMZs shall be regulated as a Floodway.
 - b. CMZs are equivalent to the Base Flood elevation limits, i.e., 100-year floodplain limits.

C. Flood Fringe. All areas subject to inundation by the Base Flood, but outside the limits of the Floodway as set forth in subsection (B) of this section. Those portions of the A, AE, AH, and shaded X zones not defined as Floodway, and that portion of a pothole and FEMA shaded X zone area that is between zero feet (Base Flood elevation) and three feet in depth shall be regulated as a Flood Fringe.

D. Other Areas of Special Flood Hazard.

1. Groundwater Flooding Areas. Groundwater flooding areas are those areas identified by Edgewood and shown on flood hazard maps and are subject to flood inundation from subsurface waters that result from a fluctuation of the groundwater table. Groundwater flooding areas shall be regulated as a Floodway or Flood Fringe pothole.
2. Natural Waters or Watercourses. Natural waters or watercourses as identified on City topographic, planimetric or orthophoto maps, WDNR Stream Classification maps, USGS Quadrangle maps, or other source maps that are not identified as a Flood Hazard Area on the FEMA maps. That portion of the natural watercourse located between the ordinary high water mark and a topographic elevation five feet above the ordinary high water mark shall be regulated as a Floodway or Flood Fringe. If the applicant chooses to accept the five-foot topographic elevation line above the ordinary high water mark as the Base Flood elevation (i.e., floodplain elevation limits), a flood study shall not be required for a natural water/watercourse.
3. Frequently Flooded Areas. See EMC Chapter 14.80.050(A)(9) as the areas defined by this section.

14.80.050 Flood Hazard Area review procedures.

A. General Requirements.

1. The City's Critical Areas Map – Flood Hazard Area Map provides an indication of where potential Flood Hazard Areas are located within the city. The actual presence or location of a Flood Hazard Area shall be determined using the procedures and criteria contained in this chapter.

2. The Department will complete a review of the Flood Hazard Area maps, and other source documents, for any development proposal to determine whether the proposed project area for a regulated activity falls within a potential Flood Hazard Area. When there is a conflict between the elevations and the mapped 100- or 500-year Floodplain or Floodway boundaries, the elevations shall govern. In the instance where Base Flood elevation data has not been provided within a mapped A zone, the Department shall obtain, review, and reasonably utilize any Base Flood elevation and Floodway data available from a federal, state, or other source to complete their review.

3. When the Department's maps or sources indicate that the proposed project area for a regulated activity is or may be located within a potential Flood Hazard Area, except for coastal flood hazard areas, the Department shall require a flood boundary verification survey as outlined in subsection (C) of this section, and may require a flood study as outlined in subsection (D) of this section, a deep or fast flowing water analysis as outlined in subsection (E) of this section, or a zero-rise analysis as outlined in subsection (F) of this section.

4. Any proposed development located within a Flood Hazard Area shall comply with the Flood Hazard Area Standards set forth in EMC Chapter 14.80.060.

5. Prior to approval of any proposed Flood Hazard Area development, all necessary permits from those governmental agencies from which prior approval is required by federal or state law, including but not limited to Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334, must be provided to the City by the applicant.

6. A FEMA letter of map amendment (LOMA) or letter of map revision (LOMR) shall not be submitted to FEMA until review and approval has been granted by the Department. The City shall not recognize any LOMA or LOMR as an amendment to the Department's flood hazard maps unless the Department has granted prior approval.

7. Unless otherwise stated in this chapter, the Critical Area protective measure provisions contained in EMC Section 14.10.070 shall apply.

8. The Federal Emergency Management Agency (FEMA) administers the nation's floodplain management program. FEMA has identified some of the flood prone areas in the city; however, it is generally recognized that FEMA's Flood Insurance Rate Maps (FIRMs) may not accurately reflect the degree or frequency of flooding within all areas of the city. Therefore, information available through FEMA may not meet Best Available Science criteria and cannot be used exclusively to address Frequently Flooded Areas.

9. The City has determined that the following documents and sources are the most current and accurate information concerning Frequently Flooded Areas within the city, and therefore represent Best Available Science:

- a. The City's Surface Water Management Plan, 1997, or as amended thereafter.
- b. Aerial photographs of the city, especially those taken in wintertime 1996 and 1997.
- c. The City's two-foot elevation contour mapping performed by Nies Mapping Group, Inc., 1999, or as subsequently updated.
- d. Relevant and verifiable information from the City's Capacity Analysis Technical Review Ad hoc Committee draft report, 2000.
- e. Relevant and verifiable government and citizen photographs, notes, observations, etc., regarding historic ponding/flooding levels, including but not limited to the City of Edgewood Potholes Water Level Monitoring 2006-2007 report prepared by Robinson Engineers, LLC.
- f. Relevant and verifiable information available through Pierce County.
- g. Relevant and verifiable information available through FEMA.

10. Flooding conditions within the city generally fall into three distinct hydrologic settings: (a) upland areas within enclosed depressions, (b) streams that flow off the upland areas, and (c) valley lowlands. Accordingly, the City manages Frequently Flooded Areas within these three zones, as described below:

- a. Upland Areas Within Enclosed Depressions. From the above list use the historic ponding elevation, determined by subsection (A)(9) of this section, or the FEMA 100-year Base Flood elevation, whichever is highest.
- b. Streams Which Flow Off the Upland Areas. From the above list use the historic flood elevation, determined by subsection (A)(9) of this section, or the FEMA 100-year Base Flood elevation, whichever is highest.
- c. Valley Lowlands. From the above list use the historic flood elevation determined by subsection (A)(9) of this section, or the FEMA 100-year Base Flood elevation, whichever is highest.

11. The City will provide local flood information to FEMA, and request FEMA's assistance in accurately mapping and evaluating Frequently Flooded Areas.

12. Warning and Disclaimer of Liability. The degree of flood protection required by this chapter is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by manmade or natural causes. This chapter does not imply that land outside Frequently Flooded Areas or uses permitted within such areas will be free from flooding or flood damages. This chapter shall not create liability on the part of City, any officer or employee thereof, or the Federal Insurance Administration, for any flood damages that result from reliance on this chapter or any administrative decision lawfully made hereunder.

B. Channel Migration Zone Study.

1. In areas where Edgewood has not conducted a detailed channel migration zone study, an applicant may submit an independent channel migration zone study to demonstrate that the channel migration zone limits for those watercourses listed in EMC Chapter 14.80 are located inside the 100-year floodplain limits.
2. The channel migration zone study shall be prepared, signed, and dated by a professional Engineer or Engineering Geologist with at least five years of experience in fluvial geomorphology, river dynamics, or geotechnical engineering.
3. The channel migration zone study shall, at a minimum, contain the information set forth in EMC Section 14.80.060, Appendix B.
4. The Department shall review the channel migration zone study and either accept the new channel migration zone limits or reject the study and require the use of the 100-year floodplain limits. Once the Department has reviewed and approved the channel migration zone study, the applicant shall be required to provide a flood boundary verification survey, as outlined in subsection (C) of this section, utilizing the newly established channel migration zone limits as the Floodway limits.

C. Flood Boundary Verification Survey.

1. A flood boundary verification survey that delineates the horizontal and vertical limits of the Base Flood elevation shall be submitted to the Department when the Department's maps or sources indicate that the proposed project area for a regulated activity is located within a potential Flood Hazard Area.
 - a. Where a Base Flood elevation has not been determined, a flood study shall be required pursuant to subsection (D) of this section.
 - b. A Base Flood elevation that has been established through a detailed flood study accepted by the Department may be used in lieu of conducting a flood study.

c. The Base Flood elevation for a natural watercourse as set forth in EMC Chapter 14.80 shall be established at the five-foot topographic elevation line above the ordinary high water mark.

2. The requirement to submit a flood boundary verification survey may be waived at the Department's discretion, when the Department can determine, using contour elevations, Base Flood data, orthophotos, and parcel data, that the extent of the regulated activity is clearly above the Base Flood elevation.

3. The flood boundary verification survey shall be prepared, signed, and dated by a registered land surveyor.

4. The Department shall review the flood boundary verification survey to determine if the proposed development is located within a Flood Hazard Area.

5. If the proposed development lies within the Flood Hazard Area, the limits of the Floodway, as well as the Base Flood elevation, shall be shown on the flood boundary verification survey.

D. Flood Study.

1. A flood study shall be conducted when the Department's maps or sources indicate that the proposed project area for a regulated activity is, or may be located within, a potential Flood Hazard Area where Base Flood elevation data is not available through the Flood Insurance Study or other authoritative sources, or when an established Base Flood elevation is contested. A full engineering analysis to determine the Base Flood elevation shall be required by the Department. Base Flood elevations shall be determined using the detailed methods established in EMC Section 14.80.060, Appendix A. The Department may approve alternative methods.

2. The flood study shall be prepared, signed, and dated by a Professional Engineer.

3. Once the Department has reviewed and approved the flood study, the applicant shall be required to provide a flood boundary verification survey, utilizing the newly established Base Flood elevation, as outlined in subsection (C) of this section.

4. Flood studies shall not be required for coastal Flood Hazard Areas.

E. Deep or Fast Flowing Water Analysis.

1. When the Department determines that a proposed project area for a regulated activity is located within a Flood Hazard Area, a deep or fast flowing water analysis based on EMC Section 14.80.060, Appendix A, shall be required to determine the Floodway limits.

2. The Floodway limits and Flood Fringe limits identified in the deep and/or fast flowing water analysis shall be depicted on the flood boundary verification survey, as outlined in subsection (C) of this section.

3. The deep and/or fast flowing water analysis shall be prepared, signed, and dated by a professional Engineer.

4. Deep and/or fast flowing water analysis shall not be required for coastal Flood Hazard Areas.

F. Zero-Rise Analysis.

1. When the Department determines that a proposed project area for a regulated activity is located within a Flood Hazard Area, a zero-rise analysis shall be required to determine that no increase in Base Flood elevation, displacement of flood volume, or flow conveyance reduction will occur as a result of the development.

2. The zero-rise analysis shall be conducted utilizing Hydrologic Engineering Center – River Analysis System (HEC-RAS) modeling methodology for stream and channel Floodways; the Western Washington Hydrology Model, i.e., WWHM, for pothole or closed depression Floodways; or an alternative methodology approved by the City, see EMC Section 14.80.100, Appendix A). The analysis shall show that no rise greater than 0.01 foot has occurred as a result of the proposed development. The scope of the proposed development may need to be reduced or special engineering may be required, e.g., utilizing piers or pilings to achieve zero-rise.

3. The zero-rise analysis shall be prepared, signed, and dated by a Professional Engineer.
4. The zero-rise analysis shall be documented on the zero-rise analysis form, as set forth in EMC Section 14.80.100, Appendix A, and shall be attached to the Flood Hazard Area permit.
5. Zero-rise analysis shall not be required for coastal Flood Hazard Areas.
6. When structures are elevated by pier or pilings and no fill is placed in the Flood Hazard Area, the requirement to submit a zero rise analysis may be waived at the Department's discretion.

14.80.060 Flood Hazard Area Standards.

A. General.

1. All subdivision proposals shall:

- a. be consistent with the need to minimize flood damage;
- b. have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize flood damage;
- c. have adequate drainage provided to reduce exposure to flood damage; and,

2. Where base flood elevation data has not been provided or is not available from another authoritative source, it shall be generated for subdivision proposals and other proposed developments which contain at least 50 lots or five acres (whichever is less).

3. New Construction done by or for the City, such as bridges, roads, flood control works, revetments, retaining walls, drainage structures, sewer or water lines, parks, or other structures necessary to promote the public's health, safety, and welfare shall be allowed in a Flood Hazard Area when:

- a. The project is prepared, dated, and stamped by a registered Professional Engineer in the state of Washington and is designed so the project does not result in any increase in flood levels during the occurrence of the Base Flood discharge (zero-rise) and shall not obstruct the Floodway or cause an adverse impact to critical fish or wildlife habitat or adjacent, cross-channel, or upstream or downstream properties; and
- b. The improvements utilize appropriate flood hazard protection standards.

4. Elevation Certificate. A Federal Emergency Management Agency (FEMA) Elevation Certificate shall be required for New Construction, any Addition affixed to the side of a structure, and Substantial Improvements located within Flood Hazard Areas. The most current version of the FEMA Elevation Certificate must be completed and certified by a professional land surveyor, currently licensed in the state of Washington, kept on file by the City for public inspection, recording the actual (as-built) elevation (in relation to mean sea level) of:

- a. The Lowest Floor, including basement, of all new or substantially improved structures, whether or not the structure contains a basement;
- b. For flood proofed nonresidential structures, where the structure was flood proofed (including flood proofing certifications).

B. Floodways. Any development, Encroachment, Clearing and Grading, New Construction, or Substantial Improvements, including structures that do not require a building permit, shall be prohibited within the Floodway, except as allowed in the following standards:

1. Agricultural Activities that do not require the installation of structures and that do not have any associated fill.

Commented [JM4]: Added from 15.10.150 D (missed in last year's flood code update); should there be a cross-reference to Title 16 somewhere around here?

2. Park and recreational uses and facilities that do not require the installation of structures and that do not have any associated fill.
3. Individual recreational vehicles, not located in an RV park, that are licensed and ready for highway use, on wheels or jacking system, and are not permanently attached to the site (i.e., attached only by quick disconnect type utilities and security devices, with no permanently attached additions).
4. Habitat Enhancement or stream Restoration activities are permitted subject to the provisions outlined in subsection (D) of this section.
5. Rehabilitation, reconstruction, or an upper story Addition to an existing structure that does not exceed the limits for a Substantial Improvement.
6. Private bridges may be allowed to cross the Floodway; provided, that the structure meets the requirements contained in EMC Section 14.80.050 and the following:

- a. The lowest structural member of a private bridge proposed to cross a channel migration zone shall be a minimum of six (6) feet above the Base Flood elevation.
- b. The lowest structural member of a private bridge proposed to cross the Floodway portion of any other watercourse shall be a minimum of one foot above the Base Flood elevation.

C. Flood Fringe Areas. All activities allowed in subsection (B) of this section shall be permitted in a Flood Fringe area. Any other proposed development, Encroachment, Clearing and Grading, New Construction, or Substantial Improvements are prohibited in a Flood Fringe area, except as permitted under the following standards:

1. Structures that do not require a building permit and that do not have any associated fill are allowed, subject to Flood Hazard Area review and permitting.
2. All other Regulated Activities shall only be allowed when the proposed development is located on an existing lot of record that was created prior to the effective date of the ordinance codified in this chapter. Applicants shall demonstrate there are no other feasible alternatives that would allow the proposed development to occur completely outside the Flood Hazard Area. At a minimum, the following shall be demonstrated:
 - a. The development cannot be located outside the Flood Hazard Area due to topographic constraints of the parcel or its size or location in relation to the limits of the Flood Hazard Area and a building setback variance has been reviewed, analyzed, and rejected as a feasible alternative to encroachment into the Flood Hazard Area; and
 - b. The proposed development shall not cause an adverse impact to adjacent, cross-channel, or upstream or downstream properties.
3. Roads, Bridges, Trails, and Parking Lots.
 - a. Roads, bridges, driveways, trails, emergency vehicle access, and access routes and easements, where allowed, shall be constructed and armored based on the standards in subsection (C)(4) of this section and elevated a minimum of one foot above the Base Flood elevation.
 - b. Parking lots shall be elevated to a minimum of one-half foot below the Base Flood elevation.
4. Clearing and Grading. When development is permitted under this subsection, it shall be designed to a zero-rise standard. Any Grading associated with the permitted development shall not increase flood hazards, water velocities, or flood elevations. In addition to meeting the requirements for zero-rise, all permitted development must also meet the following requirements:
 - a. Compensatory Storage. New excavated storage volume shall be equivalent to the flood storage capacity eliminated by Grading within the Flood Fringe. Equivalent shall mean that the storage

removed shall be replaced by equal live storage volume between corresponding one-foot contour intervals that are hydraulically connected to the floodplain through their entire depth.

b. Flow Conveyance. New excavated conveyance areas shall be equivalent to existing conveyance within the Flood Fringe. Equivalent shall mean a mechanism for transporting water from one point to another using an open channel system.

c. Erosion Protection. Development shall be protected from flow velocities greater than two feet per second through the use of bio-engineering methods or, when bioengineering methods have been deemed insufficient to protect development, then Hard Armoring may be utilized. All erosion protection shall extend one to three feet, depending on development requirements, above the Base Flood elevation and shall be covered with topsoil and planted with Native Vegetation.

5. Critical Facilities.

a. New Construction, Additions affixed to an existing structure, and Substantial Improvement of hazardous facilities, and Special Occupancy Structures are prohibited.

b. New Construction of a Critical Facility, reconstruction of an existing Critical Facility, or any Addition to an existing Critical Facility that exceed the threshold for Substantial Improvement shall be permitted when no feasible alternative site is available outside the Flood Hazard Area. Such Regulated Activities are subject to the following:

i. Critical Facilities with a Crawl Space elevated by fill shall have the Lowest Floor and any utilities and ductwork elevated a minimum of three feet above Base Flood elevation, or to the height of the 500-year flood, whichever is higher.

ii. Critical Facilities elevated by piers or pilings shall have the Finished Floor and any utilities and ductwork elevated a minimum of three feet above the Base Flood elevation or to the height of the 500-year flood, whichever is higher and must be designed by a professional structural Engineer.

iii. Access to and from the Critical Facility shall be protected to the height utilized under Subsections (C)(5)(b)(i)-(ii) of this Section. Access routes shall be elevated to or above the same elevation to the maximum extent possible.

iv. Critical Facilities shall be armored based on the standards in subsection (C)(4) of this section.

v. Flood proofing and sealing measures must be taken to ensure that toxic or explosive substances will not be displaced or released into floodwaters.

6. Structures, except for Critical Facilities as set forth in subsection (C)(5) of this section, shall be allowed subject to the following standards:

a. New Construction, Additions affixed to an existing structure, and Substantial Improvement of any structure with a Crawl Space shall have the Lowest Floor elevated a minimum of two feet above Base Flood elevation.

b. New Construction, Additions affixed to an existing structure, and Substantial Improvement of any structure elevated by piers or pilings shall have the bottom of the lowest horizontal structural member elevated a minimum of two feet above the Base Flood elevation and must be designed by a professional structural Engineer. Electrical, heating, ventilation, plumbing, air-conditioning equipment, and other service facilities and associated ductwork shall be elevated a minimum of two feet above Base Flood elevation; however, the Department may approve a lesser minimum distance above Base Flood elevation; provided, that the systems are designed to prevent floodwater from entering or accumulating within the components. Areas below the lowest horizontal structural member shall not be enclosed and shall remain free of obstructions.

c. Mobile or manufactured homes shall be anchored to prevent flotation, collapse, or lateral movement, and shall be installed using methods and practices to minimize flood damage. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This is in addition to applicable state and local anchoring requirements for resisting wind forces.

7. Agricultural Accessory Structures. The Lowest Floor in an agricultural accessory structure shall be located at the Base Flood elevation or higher; provided, that the structure be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a professional Engineer in the state of Washington or must meet or exceed the following minimum criteria:

- a. A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided;
- b. The bottom of all openings shall be no higher than one foot above grade; and
- c. Openings may be equipped with screens, louvers, or other coverings or devices; provided, that they permit the automatic entry and exit of floodwaters.

8. Construction Standards.

- a. Construction of a basement is prohibited.
- b. Crawl Spaces shall be backfilled with clean Earth Material and shall meet International Building Code requirements. Finished grade within the crawlspace shall be at least two feet above the Base Flood elevation.
- c. Flood proofing in lieu of elevating the structure is prohibited.
- d. All single-family, two-family, multifamily, mobile or manufactured homes, commercial, and industrial structures shall be placed on standard concrete stemwall or footing foundations or piles, piers, or column foundations and engineered pursuant to International Building Code requirements.

9. Sewage Disposal and Potable Water Installation.

- a. New and replacement public water sources, i.e., wells and water supply lines and public sanitary sewage conveyance systems are allowed. These systems shall be designed to withstand scour resulting from flow velocity, minimize or eliminate infiltration of floodwaters into the systems, and minimize or eliminate discharge from the systems into floodwaters
- b. All replacement wells and replacement on-site sewage system (OSS) shall be designed to minimize or eliminate impairment to them or contamination from/to them during flooding, i.e., infiltration of floodwaters into or discharge out of the systems. They shall not be located in pothole or no-outlet floodplains.
- c. All new individual wells and new on-site sewage system (OSS) shall be prohibited. Conveyance systems from a structure to a well or OSS located outside of the Flood Hazard Area shall be allowed provided these systems are designed to meet the standards in subsection (C)(4) of this section.

14.80.070 Variances to Flood Hazard Areas.

A. General. Variances are reviewed pursuant to the process and criteria outlined in EMC 14.10.100, Variances to Critical Areas.

B. Additional Criteria for Flood Hazard Area Variances. In addition to the variance criteria referenced above in subsection (A) of this section, in order for the decision maker to approve a Flood Hazard Area variance, there must be written findings that the applicant has demonstrated the proposal satisfies all of the following:

1. Generally, the only condition under which a variance from the elevation standard may be issued is for New Construction and Substantial Improvements to be erected on a small or irregularly shaped lot contiguous to and surrounded by lots with existing structures constructed below the Base Flood level. As the lot size increases the technical justification required for issuing the variance increases.
2. Variances shall not be issued within a designated Floodway if any increase in flood levels during the Base Flood discharge would result.
3. Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
4. Variances shall only be issued upon:
 - a. A showing of good and sufficient cause;
 - b. A determination that failure to grant the variance would result in exceptional hardship to the applicant and that the hardship was not created by the applicant;
 - c. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.
5. Variances as interpreted in the National Flood Insurance Program are based on the general zoning law principle that they pertain to a physical piece of property; they are not personal in nature and do not pertain to the structure, its inhabitants, economic or financial circumstances. They primarily address small lots in densely populated residential neighborhoods. As such, variances from flood elevations should be quite rare.
6. Variances may be issued for nonresidential buildings in very limited circumstances to allow a lesser degree of flood proofing than watertight or dry-flood proofing, where it can be determined that such action will have low damage potential, complies with all other variance criteria except B.1, above, and otherwise complies with EMC 14.80.060, Flood Hazard Area Standards.
7. Any applicant to whom a variance is granted shall be given written notice that the permitted structure will be built with its Lowest Floor below the Base Flood elevation and that the cost of flood insurance will be commensurate with the increased risk.

14.80.080 Appendices.

A. Floodplain/Floodway Analysis.

B. Channel Migration Zone Study.

APPENDIX A**FLOODPLAIN/FLOODWAY ANALYSIS**

This Appendix describes the flood hazard analyses and studies as required by EMC Chapter 14.80 – Flood Hazard Areas. Flood hazard studies establish the Base Flood elevation and delineate floodplain and/or Floodway(s) when a proposed project contains or is adjacent to a river, stream, lake, or closed depression.

Flood hazard studies must conform to FEMA regulations described in Part 65 of 44 Code of Federal Regulations (CFR). In addition, the following information must be provided and procedures performed for flood hazard studies used under EMC Chapter 14.80 to examine development proposals or improvements within a floodplain.

Article I. Floodway Determination

The City recognizes two distinct Floodways. The FEMA Floodway describes the limit to which encroachment into the natural conveyance channel can cause one foot or less rise in water surface elevation. The deep and fast flowing (DFF) water Floodways are hazardous areas and conditions of the floodplain for both people and habitable

structures. Life safety and protection to improved properties are compromised if encroached upon. Encroachment cannot occur within these areas.

A. FEMA Floodways.

1. FEMA Floodways are determined through the procedures outlined in the FEMA publication Guidelines and Specifications for Study Contractors using the one-foot maximum allowable rise criteria.
2. Transitions shall take into account obstructions to flow such as road approach grades, bridges, piers, culverts, or other restrictions. General guidelines for transitions may be found in HEC-RAS, Water Surface Profiles – User's Manual, Appendix IV, Application of HEC-RAS Bridge Routines, published by the Hydrologic Engineering Center, Davis, California.

B. Deep and/or Fast Flowing (DFF) Floodways.

1. DFF Floodways are generally assumed to include the entire 100-year floodplain until the Department approves a detailed Floodway analysis that defines areas of DFF within the entire floodplain area based on the criteria.
2. The hydraulic model must adequately be calibrated to known or recorded stage elevations of past flood events with computed recurrence frequency intervals for the 100-year flood recurrence interval. This is to ensure model accuracy.

Article II. Flood Study Content and Required Information

Three copies of the completed floodplain/Floodway analysis study report and the modeling digital files shall be submitted. The report submittal must be stamped by a licensed professional civil Engineer and include the following information in addition to that required for the drainage plan of a proposed project:

A. Floodplain/Floodway Map.

1. A scaled survey base map stamped by a licensed professional land surveyor registered in the state of Washington. The map must accurately locate the proposed development with respect to the floodplain and Floodway, the channel of the subject stream, river, and/or pothole location, and the existing improvements within the subject study area. It must also supply all pertinent information such as the nature of the proposed project, legal description of the property on which the project would be located, fill quantity, limits and elevation, the building floor elevations, and use of compensatory storage.
2. The map must show elevation contours at a minimum of two-foot vertical intervals and shall comply with survey and map guidelines published in the FEMA publication Guidelines and Specifications for Study Contractors. The map must show the following:
 - a. Elevations and ground contours, spot elevations, and vertical datum NAVD 88 (North American Vertical Datum of 1988) (or most recent vertical datum accepted by the Department).
 - b. Elevations and dimensions of existing structures, fill, and compensatory storage areas.
 - c. Size, location, elevation and spatial arrangement of all proposed structures on the site.
 - d. Location and elevations of roadways, drainage facilities, water supply lines, and sanitary sewer facilities.
 - e. Areas of DFF must clearly be shown and plotted on the map sheet depicting the bounded area of the Floodway on both sides of the study channel through the subject site. DFF Floodway studies must reflect all transitions as referenced above as well.

f. The base maps must also be accompanied by all field survey notes/computations, drawings, etc., for each cross-section with water surface elevation at the time the cross-section field survey was done.

B. Study Report.

1. Soil maps, groundcover maps, and photographs.
2. A narrative report containing the purpose of the study and description of the study area, data collection, methodology for both the hydrology and hydraulics, detailed discussion on the input parameters used, modeling results, and conclusions.
3. A floodplain/Floodway analysis must include calculations and all computer analysis input and output information, supporting graphical illustrations, as well as the following additional information:
 - a. Scaled cross-sections showing the current, existing conditions of the river or stream channel, the floodplain adjoining each side of the channel, the computed Floodway, the cross-sectional area to be occupied by any proposed development and all historic high water information.
 - b. Profiles showing the bottom of the channel, the top of both left and right banks and computed Base Flood water surface elevations for the 10-, 25-, 50- and 100-year events.
 - c. Plans and specifications of any flood protection for structures, construction areas, Clearing, dredging, channel improvements, storage of materials, water supply, and sanitary facilities within the floodplain.
 - d. Complete printout of input and output data of the model that was used for the analysis. Liberal use of comments and written discussion will assist considerably in understanding the model logic and minimize misinterpretations and/or questions.
 - e. A map, showing the graphical/plotted location and limits of the computed Floodway and/or floodplain.
 - f. Three copies of ready-to-run digital files of both the hydrologic and hydraulic model and its input and output files used in the study. Data shall be submitted on a disk in standard ASCII format, ready to use on an IBM-compatible personal computer and in the applicable software application, e.g., HEC-RAS, HSPF – Hydrological Simulation Program – FORTRAN, SBUH, or similar application.
 - g. A section on the flood flow including computer modeling or calculations.
 - h. Aerial photographs of the site including pre-February 1996 and post-February 1996 photos of the site.
 - i. All field survey notes/computations, maps, and drawings for each cross-section with water surface elevation at the time of the cross-section field survey.

C. Computer Modeling Information. Floodway/floodplain studies submitted to the City for review must include output summary tables and include the following (but not limited to) items:

1. Cross-section(s) identification number.
2. Range of flows being examined.
3. Computed water surface elevation at each cross-section.
4. Energy grade line at each cross-section.
5. Graphical plots of the channel cross-sections with computed water surface elevations for all model runs including calibrated model runs.
6. All model input and output printouts.

7. Graphical plots of the model output data that show the points and segments along each cross-section where deep or fast flowing water occurs. This shall include cross-section plots of depth and velocity in one-unit increments. The plots shall also be accompanied with a table listing the station distance (right and left bank), flow rate, area, hydraulic depth, velocity, and whether each point is a Floodway.

8. A plan sheet clearly showing the graphical representation of the bounded area of the Floodway based on DFF criteria through the entire study site and reach. Note that identified islands or pockets within the middle of the bounded Floodway area are generally considered as part of the Floodway, unless otherwise approved by the Department.

9. Discussion on the starting water surface elevation for the hydraulic model.

Article III. Determining Flood Flows

The three techniques used to determine the flows used in a flood study depend on whether gauge data is available, whether a basin plan has been adopted, or a detailed flood study has been done and approved for use by the Department. The first technique is for basins with adopted basin plan areas. The second technique is used if a gauging station exists on the stream. The third technique is used on ungauged catchments or those with an insufficient length of record. In all cases, the Engineer shall be responsible for assuring that the hydrologic methods used are technically reasonable, conservative, conform to the FEMA publication, Guidelines and Specifications for Study Contractors, and are acceptable by FEMA and the Department.

A. Flood Flows from Adopted Basin Plan Information. Flood flows may be determined using information from the City's basin plan. The hydrologic model used in the basin plan shall be updated to include the latest changes in zoning or any additional information regarding the basin which has been acquired since the adoption of the basin plan.

B. Flood Flows from Stream Gauge Data. Determining flood flows from stream gauge data uses the Log-Pearson Type III distribution method as described in the Guidelines for Determining Flood Flow Frequency, Bulletin 17B of the Hydrology Committee, United States Water Resources Council (revised October 1981).

1. This technique may be used only if data from a gauging station in the basin is available for a period of at least 10 years.

2. If the difference in the drainage area on the stream at the study site and the drainage area to a gauging station on the stream at a different location in the same basin is less than or equal to 50 percent, the flow at the study site shall be determined by transferring the calculated flow at the gauge to the study site using a drainage area ratio raised to the 0.86 power, as in the following equation:

where

- Q_{ss} = estimated flow for the given return frequency on the stream at the study site.
- Q_G = flow for the given return frequency on the stream at the gauge site.
- A_{ss} = drainage area tributary to the stream at the study site.
- A_G = drainage area tributary to the stream at the gauge site.

3. If the difference in the drainage area at the study site and the drainage area at a gauging station in the basin is more than 50 percent and a basin plan has not been prepared, a continuous model shall be used as described below to determine the flood flows at the study site.

4. In all cases where dams or reservoirs, floodplain development, or land use upstream may have altered the storage capacity or runoff characteristics of the basin so as to affect the validity of this technique, a continuous model shall be used to determine flood flows at the study site.

C. Flood Flows from a Calibrated Continuous Model. Flood flows may be determined by utilizing a continuous flow simulation model such as HSPF or other equivalent continuous flow simulation model, as approved by the City. Where flood elevation or stream gauging data are available, the model shall be calibrated to the known data. Otherwise, regional parameters may be used.

Article IV. Determining Flood Elevations, Profiles and Floodways (Hydraulic Model)

A. Reconnaissance. The applicant's project Engineer is responsible for the collection of all existing data with regard to flooding in the study area. This shall include a literature search of all published reports in the study area and adjacent communities and an information search to obtain all unpublished information on flooding in the immediate and adjacent areas from federal, state, and local units of government. This search shall include specific information on past flooding in the area, drainage structures such as bridges and culverts that affect flooding in the area, available topographic maps, available community maps, photographs of past flood events, and general flooding problems within the community. Documented discussions with nearby property owners should also be done to obtain a witness account of the flooding extent. A field reconnaissance shall be made by the applicant's project Engineer to determine hydraulic conditions of the study area, including type and number of structures, locations of cross-sections, and other parameters including the roughness values necessary for the hydraulic analysis.

B. Base Data. Channel cross-sections used in the hydraulic analysis shall be current/existing at the time the study is performed and shall be obtained by field survey. Topographic information obtained from aerial photographs/mapping may be used in combination with surveyed channel cross-sections in the hydraulic analysis. The elevation datum of all information used in the hydraulic analysis shall be verified. All information shall be referenced directly to NAVD 1988 (and include local correlation to NGVD) unless otherwise approved by the City.

C. Methodology. Flood studies and analysis (including deep and/or fast flowing Floodways and zero-rise analysis) shall be calculated using the U.S. Army Corps of Engineers HEC-RAS computer model (or subsequent revision) unless otherwise approved by the City.

D. Adequacy of the Hydraulic Model. Edgewood considers the following (but not limited to) factors when determining the adequacy of the hydraulic model for use in the Floodway/floodplain model:

1. Cross-section of a downstream starting location and spacing.
2. Differences in energy grade line (significant differences in the energy grade line from cross-section to cross-section are an indication that cross-sections should be more closely spaced or that other inaccuracies exist in the hydraulic model).
3. Methods and results for analyzing the hydraulics of structures such as bridges and culverts.
4. Lack of flow continuity.
5. Use of a gradually varied flow model. In certain cases, rapidly varied flow techniques may need to be used in combination with a gradually varied flow model such as weir flow over a levee, flow through a spillway of a dam, or special application of bridge flow (pressure flow if bridge superstructure is shown to be submerged for the study event).
6. Manning's "n" value.
7. Calibration of hydraulic model to known or observed flow stage elevations including past flood events.
8. Special applications. In some cases, steady state one-dimensional hydraulic models may not be sufficient for preparing the floodplain/Floodway analysis. This may occur where sediment transport, two-dimensional flow, or other unique hydraulic circumstances affect the accuracy of the model. In these cases, the project Engineer must propose and obtain Department approval of alternative models for establishing the water surface elevations.
9. All reported error or warning messages by the model must be properly and adequately addressed or resolved and included in the report for review verification.

Article V. Zero-Rise Analysis (ZRA)

A. Zero-rise analysis (ZRA) is required where Encroachment within the Flood Fringe area is allowed and approved by the Department. The ZRA must show that the proposed development Encroachment in the Flood Fringe area will not create more than a 0.01-foot rise in the Base Flood elevation resulting from a comparison of existing conditions and proposed conditions. This is directly attributable to development in the floodplain but not attributable to manipulation of mathematical variables such as roughness factors, coefficients, discharge, and other hydraulic parameters.

B. In addition to those items listed in subsection (A) of this article, the following shall be included in a ZRA:

1. Floodway boundaries (based on zero-rise) are to follow the stream lines and reasonably balance the rights of property owners on either side of the Floodway. Use of the automatic equal conveyance encroachment option in the model will be considered equitable.
2. The ZRA must include a sufficient number of cross-sections in order to accurately model the subject fill and compensatory storage areas of the site. In all cases, cross-sections shall be located downstream, through the subject site and upstream of the site at a very minimum. They shall also be located where changes in channel and the fill material characteristics occur, such as slope, shape, and roughness. The sections shall also be located perpendicular to the flow path in the channel and the outside overbank areas. The Department shall review and approve the proposed number and location of cross-sections. All cross-sections and surveys shall be prepared and certified by a professional land surveyor or registered professional Engineer in the state of Washington.
3. The difference between two profiles of water surface elevation at the cross-section, e.g., difference between existing and encroached water surface. The model must report 0.01 feet or less an allowable change in the water surface elevation. This must be shown in the profile graphical plot as well.
4. The difference between profiles of the energy grade line at the cross-section. The model must report 0.01 feet or less. This is the allowable change in the energy grade line. This must be shown in the profile graphical plot as well.

C. Conveyance Capacity.

1. The ZRA must also show that the proposed development Encroachment in the Flood Fringe area will not show a measurable decrease (less than 0.01 CFS) in the conveyance capacity of the channel, resulting from a comparison of existing conditions and proposed conditions, for each of the cross-sections. This is also directly attributable to development in the Floodplain but not attributable to manipulation of mathematical variables such as roughness factors, coefficients, discharge, and other hydraulic parameters.
2. The analysis must provide calculations of the reduction in conveyance caused by the proposed development Encroachment, assuming no change in the water surface elevation, and using the roughness coefficient value(s) appropriate for the proposed development.
3. The analysis must then provide calculations for the increase in conveyance of the proposed compensatory measure, using the roughness coefficient value(s) appropriate for the proposed development.
4. Include a comparison analysis and discussion from subsections (C)(2) and (3) of this article. The comparison must adequately show that the conveyance capacity has not measurably decreased between the existing condition and proposed development condition.

Floodplain/Floodway Zero-Rise Certification

This is to certify that I am a duly qualified professional Engineer licensed to practice in the state of Washington.

This is to further certify that the attached Floodplain/Floodway zero-rise analysis conclusively shows that the proposed development of:

(Name of Development) Parcel Number

will not increase the 100-year Base Flood elevation(s) and widths nor reduce the conveyance capacity of the Floodplain, Floodway, and its associated channel to the

(Name of River, Stream, Pothole or other Watercourse)

Supporting Data

Base Flood Elevation (Pre-Development) = _____ FT (NAVD 88)

Base Flood Elevation (Post-Development) = _____ FT (NAVD 88)

Conveyance Capacity (Pre-Development) = _____ CFS

Conveyance Capacity (Post-Development) = _____ CFS

with compensatory storage)

Signature Date

Title Firm Name

Address

City

State Zip Code

APPENDIX B**CHANNEL MIGRATION ZONE STUDY REQUIREMENTS**

The channel migration zone (CMZ) is the area within the lateral extent of likely stream channel movement due to stream bank destabilization and erosion, rapid stream incision, and shifts in location of stream channels. The CMZ will define areas in which, to the best information available, development should be regulated due to the dangers expected from erosion.

Article I. Determining Channel Migration Zone Limits

A. The CMZ shall be based on available historic records of channel migration, or 100 years of calculated channel migration whichever is greater, and will generally include those areas that encompass:

1. The limit of geologic controls, such as hill slope, bedrock outcrop, or abandoned Floodplain terrace;
2. Side channels, abandoned channels, and oxbows; and
3. Outside edges of progressive bank erosion at meander bends.

B. Channel migration over the 100-year time frame can be estimated and predicted from geomorphic analysis of annual bank erosion rates, historic meander belt width, and measured meander bend amplitudes, potential avulsion sites, and previous river channel locations as depicted on historic aerial photographs and maps. The 100-year time span represents the time required to grow mature trees that can provide functional large woody debris to streams.

C. The CMZ boundaries will be determined using the following specific criteria:

1. The representative average annual rate of channel migration in the affected river reach is calculated by dividing the lateral distance eroded with the corresponding elapsed time shown in sequential aerial photographs or historic maps (distance/time equals channel movement). Measurements from reaches that have had some form of bank armoring shall not be included. Historical records will need to be checked closely for this information.
2. Identify the width of the channel migration zone by multiplying the representative average annual erosion rate by 100 years.

D. Areas separated from the active channel by legally existing artificial channel constraints (levees, roads, driveways, etc.) that limit bank erosion and channel avulsion to the 100-year recurrence interval flood elevation plus three feet of freeboard shall serve as a boundary for the outer limit of the CMZ.

Article II. Channel Migration Zone Study Content and Required Information

Three copies of the completed channel migration zone study shall be submitted. The study submittal must be stamped by a licensed professional Engineer or professional Geologist with five (5) years of experience in fluvial geomorphology, river dynamics, or geotechnical engineering. The CMZ study shall include the following information in addition to that required for the drainage plan of a proposed project. The CMZ study will consist of a written technical report including:

- A. Detailed methods, techniques, and assumptions used in determining the location of the CMZ.
- B. A vicinity map and site with scale, north arrow, and parcel number(s) or specific site being studied.
- C. A clear statement of the requested revision to Pierce County's determination of the 100-year Floodplain limits as the CMZ.
- D. A clearly stated conclusion of the study results that support the requested revision. The conclusion needs to document the basis for the revision, show how the data presented refutes the 100-year Floodplain limits as the CMZ, and calculates the new results using the new information.
- E. A map clearly delineating the subject property and the CMZ of the adjacent watercourse. In addition to providing a hard copy of the CMZ map, the CMZ map shall also be provided in ARC-View shapefile format. Contact the Department for mapping and aerial imaging standards. (Ord. 02-200 § 2).

Chapter 14.90**LANDSLIDE HAZARD AREAS**

Sections:

- 14.90.010 Purpose.
- 14.90.020 Landslide Hazard Areas.
- 14.90.030 Landslide Hazard Area review procedures.
- 14.90.040 Landslide and Erosion Hazard Area standards.
- 14.90.050 Buffer requirements.
- 14.90.060 Appendices.

14.90.010 Purpose.

The purpose of this chapter is to:

- A. Protect human life and health.
- B. Regulate uses of land in order to avoid damage to structures and property being developed and damage to neighboring land and structures.
- C. Identify and map active Landslide Hazard Areas.
- D. Minimize the ill effects on Wetlands and critical fish and wildlife habitat that can result from landslides.
- E. Establish permit requirement and review procedures for development proposals in areas with potential landslides. (Ord. 02-200 § 2).

14.90.020 Landslide Hazard Areas.

A. Landslide Hazard Areas. Landslide Hazard Areas are areas potentially subject to mass movement due to a combination of geologic, seismic, topographic, hydrologic, or manmade factors. Landslide Hazard Areas are identified by the presence of any of the following five (5) indicators.

1. Areas of historic failures, including areas of unstable, old and recent landslides or landslide debris within a head scarp.
2. Areas with all three (3) of the following characteristics:
 - a. Slopes steeper than 15 percent with a vertical relief of 20 feet or more; and
 - b. Hillsides that intersect geologic contacts with a relatively permeable sediment overlying a relatively impermeable sediment or bedrock; and
 - c. Springs or groundwater seepage.
3. Areas exhibiting geomorphological features indicative of past slope failure within the last 10,000 years, such as hummocky ground, back-rotated benches on slopes, tension cracks, etc.
4. Any area with a slope of 40 percent or steeper and with a vertical relief of 15 or more feet.
 - a. Slopes may be exempted from the requirements of this section provided that it can be demonstrated by a qualified Geotechnical Professional that such an exemption does not result in an increased risk of landsliding or damage to the subject site, nearby properties, and existing structures. Any associated hazards to proposed structures must be suitably mitigated.
 - b. For the purposes of determining whether a slope is considered to be a Landslide Hazard Area, the horizontal and vertical distance between the Top of Slope and Toe of Slope are utilized.

5. Areas that are at risk of mass movement due to seismic events.

B. Potential Landslide Hazard Areas. Potential Landslide Hazard Areas, as depicted on the Geologically Hazardous Areas map, are those areas where the suspected risk of slope instability and landslide is sufficient to require a geological assessment to assess the potential for active landslide activity. Potential Landslide Hazard Areas are determined by using the following criteria:

1. Areas that possess one or more of the Landslide Hazard Area indicators (stratigraphy, topography, emergent groundwater seepage, etc.) as set forth in subsection (A) of this section and any adjacent area within a distance of 65 feet. These areas include, but are not necessarily limited to, those areas designated on the City's Geologically Hazardous Areas map as moderate or steep slope areas.

14.90.030 Landslide Hazard Area review procedures.

A. General Requirements.

1. The City's Geologically Hazardous Areas map provides an indication of where potential Landslide Hazard Areas are located within the city. The actual presence or location of Landslide Hazard Areas that have not been mapped, but may be present on or adjacent to a site, shall be determined using the geological assessment procedures established in this chapter.
2. The Department will complete a review of the Geologically Hazardous Areas map and other source documents for any proposed regulated activity to determine whether the site is, or may be, located within a Landslide Hazard Area or potential Landslide Hazard Area. Identification of a Landslide Hazard Area or potential Landslide Hazard Area may also occur as a result of field investigations conducted by Department staff.
3. When the Department's maps or sources indicate that the site for a proposed regulated activity is or may be located within a Landslide Hazard Area or potential Landslide Hazard Area, the Department shall require the submittal of a geological assessment as outlined in subsection (B) of this section.
4. Unless otherwise stated in this chapter, the critical protective measure provisions contained in EMC Chapter 14.10 shall apply.

B. Geological Assessment. A geological assessment is a site investigation process to evaluate the on-site geology affecting a subject property. The findings of the geological assessment shall be presented in a Landslide Hazard Geotechnical Verification or Geotechnical Report.

1. Geological assessments shall be submitted to the Department for review and approval together with a Landslide Hazard Area application and associated fee.
2. A geological assessment shall include a field investigation and may include the use of historical air photo analysis, LiDAR mapping, review of regional geologic mapping, review of public records and documentation, and interviews with adjacent property owners, etc.
3. The geological assessment shall include the following information and analysis contained in paragraphs a-d.:
 - a. A determination of which areas on the site or within the vicinity of the site meet the criteria for a Landslide Hazard Area as set forth herein.
 - b. Consider the run-out hazard of landslide debris to the proposed development that starts upslope (whether part of the subject property or on a neighboring property) and/or the impacts of landslide run-out on down slope properties.
 - c. The geological assessment shall include a detailed review of the field investigations, published data and references, data and conclusions from past geological assessments, or geotechnical investigations of the site, site-specific measurements, tests, investigations, or studies, as well as the methods of data analysis and calculations that support the results, conclusions, and recommendations.

d. All of the information required per EMC Section 14.10.080.C.

4. Geological assessments shall be prepared, signed, and dated by a Geotechnical Professional. The format shall be pre-approved by the Department.

5. A Geotechnical Professional shall complete a field investigation and geological assessment to determine whether or not a Landslide Hazard Area is likely to exist within 300 feet of the site. Where access to off-site properties is not available by the Geotechnical Professional, evaluation of off-site landslide hazards must include review of regional geologic mapping and LiDAR based topographic mapping.

a. The geological assessment shall be submitted in the form of geotechnical verification when the Geotechnical Professional finds that no Landslide Hazard Area exists within 300 feet of the project area.

b. The geological assessment shall be submitted in the form of a Geotechnical Report when the Geotechnical Professional finds that a Landslide Hazard Area exists within 300 feet of the proposed project area or when a Geotechnical Professional determines that mitigation measures are necessary in order to construct or develop within a potential Landslide Hazard Area.

6. Geological assessments that do not contain the required information will be returned to the Geotechnical Professional for revision.

7. The Department shall review the geological assessment and either:

a. Accept the geological assessment; or

b. Reject the geological assessment and require revisions or additional information.

8. A geological assessment for a specific site may be valid for a period of up to five years when the proposed land use activity and surrounding site conditions are unchanged. However, if any environmental conditions associated with the site change during that five-year period, the applicant may be required to submit an amendment to the geological assessment. (Ord. 02-200 § 2).

14.90.040 Landslide and Erosion Hazard Area standards.

A. Landslide Hazard Areas. Any development, Encroachment, Clearing and Grading, building structures, impervious surfaces, or vegetation removal shall be prohibited within Landslide Hazard Areas and associated Buffers except as specified in the following standards:

1. Stormwater Conveyance. Stormwater conveyance shall be allowed when it is conveyed through a high-density polyethylene stormwater pipe with fuse-welded joints and when no other stormwater conveyance alternative is available. The pipe shall be located on the surface of the ground and be properly anchored so that it will continue to function in the event of an underlying slide.

2. Utility Lines. Utility lines will be permitted when no other conveyance alternative is available. The line shall be located above ground and properly anchored and/or designed so that it will continue to function in the event of an underlying slide.

3. Roads, Bridges, and Trails. Roads, bridges, and trails shall be allowed when all of the following conditions have been met:

a. Mitigation measures are provided that ensure the roadway prism and/or bridge structure will not be susceptible to damage from landslide-induced ground deformation or impact/coverage by landslide debris. Mitigation measures shall be designed for static and seismic loading conditions in accordance with the most recent version of the American Association of State Highway and Transportation Officials (AASHTO) Manual.

b. The road is not a sole access for a development.

- c. The removal or disturbance of vegetation and Grading activities shall be prohibited during the wet season from November 1st until May 1st.

B. Landslide Hazard Management Areas. All Regulated Activities may be allowed in areas located within 300 feet of a Landslide Hazard Area subject to the following standards:

1. The Department reviews and approves a geological assessment – Geotechnical Report and determines that the potential Landslide Hazard Area is stable.
2. The proposed development is located outside of a Landslide Hazard Area and any required Buffer.
3. The proposed recommendations and mitigation measures contained within the Geotechnical Report are adequate to reduce or mitigate risks to health and safety.
4. The proposed development shall not decrease the factor of safety for landslide occurrence below the limits of 1.5 for static conditions and 1.1 for dynamic conditions. Analysis of dynamic (seismic) conditions shall be based on a minimum horizontal acceleration as established by the current version of the International Building Code.
5. The removal and disturbance of vegetation and Grading activities shall be limited to the area of the approved development and shall not be allowed during the wet season from November 1st until May 1st unless adequate provisions for wet season erosion have been addressed in the Geotechnical Report and approved by the Department.
6. Surface drainage from developed areas, including downspouts and runoff from paved or unpaved surfaces up slope, shall not be directed through a Landslide Hazard Area or its associated Buffer unless it is conveyed in conformance with the provisions in EMC 14.90.030.
7. Stormwater retention facilities, including infiltration systems utilizing perforated pipe, are prohibited unless the slope stability impacts of such systems have been analyzed and mitigated by a Geotechnical Professional and the impacts have been determined to be negligible.
8. The proposed development shall not create a need for larger Landslide Hazard Area Buffers and setbacks on neighboring properties unless approved through a notarized written agreement with the affected property owner(s).
9. The proposed development shall be sited far enough from regressing slope faces to project 120 years of useful life for the proposed structure(s) or infrastructure.
10. Any proposed lots must be completely located outside any identified Landslide Hazard Areas or their associated Buffers.
11. Landslide Hazard Areas that are directly adjacent to any Riparian areas, or Wetlands, may be subject to additional Buffer requirements and standards. See EMC Chapter 14.50, Critical Fish and Wildlife Habitat Areas and EMC Chapter 14.40, Wetlands for additional details. (Ord. 02-200 § 2).

14.90.050 Buffer requirements.

A. Determining Buffer Widths.

1. The Buffer width shall be measured on a horizontal plane from a perpendicular line established at the edge of the Landslide Hazard Area limits, both from the top and toe of the slope.
2. A Buffer of undisturbed vegetation shall be required for a Landslide Hazard Area. The required Buffer width is the greater amount of the distances described in EMC Chapter 14.90:
 - a. Fifty feet from all edges of the active Landslide Hazard Area limits;

b. A distance of one-third the height of the slope at the top of the active Landslide Hazard Area and a distance of one-half the height of the slope at the bottom of an active Landslide Hazard Area; or

B. Modification of Buffer Widths. The Department may require a larger Buffer width than the Buffer distance, as determined in subsection (A) of this section, if any of the following are identified:

1. The adjacent land is susceptible to severe erosion and erosion control measures will not effectively prevent adverse impacts.
2. The area has a severe risk of slope failure or downslope stormwater drainage impacts. (Ord. 02-200 § 2).

14.90.060 Appendices.

A. Geological Assessment – Landslide Hazard Geotechnical Verification.

B. Geological Assessment – Landslide Hazard Geotechnical Report.

APPENDIX A

GEOLOGICAL ASSESSMENT – LANDSLIDE HAZARD GEOTECHNICAL VERIFICATION

A. A geotechnical verification shall include the following:

1. The general Critical Areas report requirements.
2. A description of the surface and subsurface geology, hydrology, soils, and vegetation at the site and a list of the Landslide Hazard Area indicators that were found on or in the vicinity of the site.
3. A summary of the results, conclusions, and recommendations resulting from the geological assessment of the landslide hazards on or in the vicinity of the site.
4. An accurate site plan drawn at a scale of one inch equals 20 feet, one inch equals 30 feet, one inch equals 50 feet (or other scale deemed appropriate by the Department) is required. The Department may require that the site plan information listed below be based on a field survey by a licensed surveyor. The site plan shall include:
 - a. The limits and location of any active Landslide Hazard Area.
 - b. The limits and location of the required landslide hazard Buffer.
 - c. The location of any existing and proposed structures, utilities, on-site septic systems, wells, and stormwater management facilities.
 - d. The full geographical limits of the proposed project area or area to be developed.
 - e. Dimension the closest distance between the identified active Landslide Hazard Area boundary and the project area.
 - f. Existing topography on the site presented in two-foot contours.
 - g. Property lines for the site.
 - h. North arrow and plan scale.

B. The Geotechnical Professional who prepared the verification document shall stamp the verification with their license stamp or seal.

C. Geotechnical verifications shall be in conformance with a format that is pre-approved by the Department.

APPENDIX B

GEOLOGICAL ASSESSMENT – LANDSLIDE HAZARD GEOTECHNICAL REPORT

A. At a minimum, a Geotechnical Report shall include the following:

1. The general Critical Areas report requirements.
2. A description of the surface and subsurface geology, hydrology, soils, and vegetation of the site and a list of the Landslide Hazard Area indicators that were found on or in the vicinity of the site.
3. A summary of the results, conclusions, and recommendations resulting from the geological assessment of the landslide hazards on or in the vicinity of the site.
4. An accurate site plan drawn at a scale of one inch equals 20 feet, one inch equals 30 feet, one inch equals 50 feet (or other scale deemed appropriate by the Department) is required. The Department may require that the site plan information listed below be based on a field survey by a licensed surveyor. The site plan shall include:
 - a. The limits and location of any Landslide Hazard Area within the site. Delineation of the Landslide Hazard Area limits shall identify any areas of historic landslide activity.
 - b. The limits and location of the required landslide hazard Buffer.
 - d. The location of any existing and proposed structures, utilities, on-site septic systems, wells, and stormwater management facilities.
 - e. The full geographical limits of the proposed project area or area to be developed.
 - f. Location and unique identifier of geotechnical borings, CPT soundings, or other surveys or explorations used to characterize subsurface conditions.
 - g. Extent of cross-section(s) used to evaluate the three-dimensional subsurface geologic and groundwater conditions at the site.
 - h. Extent of cross-section(s) used in the evaluation of slope instability.
 - i. Existing topography on the site presented in two-foot contours.
 - j. Property lines for the site.
 - k. North arrow and plan scale.
5. Subsurface characterization data must be provided. The data shall be based on both existing and new information that may include soil borings, test pits, geophysical surveys, or other appropriate subsurface exploration methods, development of site-specific soil and/or rock stratigraphy, and measurement of groundwater levels including variability resulting from seasonal changes, alterations to the site, etc.
 - a. Geotechnical borings or CPT soundings will be advanced to a depth sufficient to characterize geologic conditions within and below the existing or potential landslide mass.
 - b. Other methods used for subsurface characterization shall be assigned a unique identifier, and the basic data presented in appropriate graphical and/or tabular format.
 - c. The three-dimensional subsurface conditions at the site shall be presented using one or more cross-sections showing location and depth penetration of geotechnical borings, CPT soundings, or other subsurface characterization methods, interpretation of the geometry of major soil units, and projected location of the static groundwater surface determined from the subsurface exploration. The cross-sections shall be presented at a scale of one inch equals 20 feet, one inch equals 30 feet, one inch equals 50 feet (or other scale deemed appropriate by the Department). Each cross-section shall have a legend with a description of the various major soil units.

6. A detailed description of any prior Grading activity, soil instability, or slope failure.

7. Where deemed appropriate by the Geotechnical Professional assessments and conclusions regarding slope stability for both the existing and developed conditions shall be presented and documented. These assessments and conclusions shall include the information provided below in EMC Section 14.90.060, Appendix B. The project Geotechnical Professional must provide justification for not including a slope stability analysis if one is excluded. The City's Geotechnical Professional reserves the right to request a slope stability analysis based on site conditions. If a dispute arises between the project Geotechnical Professional and the City's Geotechnical Professional regarding the need for a slope stability analysis, then the City reserves the right to require an independent, third party review to be paid for by the applicant to resolve the dispute.

a. Determination of the potential type(s) of landslide failure mechanisms, Debris Flow, rotational slump, or translational slip that may affect the site.

b. Quantitative stability evaluation of slope conditions of the various failure mechanisms using state-of-the-practice modeling techniques. Limiting equilibrium methods of analysis shall state the stability conditions as a factor of safety. The most unstable failure geometry(ies) shall be presented in the form of a cross-section(s), with the least stable failure geometry for each failure mechanism clearly indicated. The stability evaluation shall also consider dynamic (earthquake) loading, and shall use a minimum horizontal acceleration as established by the current version of the International Building Code.

c. An analysis of slope regression rate shall be presented in those cases where stability is impacted or influenced by erosional processes (e.g., wave cutting, stream meandering, etc.) acting on the toe of the slope.

8. Mitigation recommendations using engineered measures to protect the proposed structure(s) and any adjacent structures, infrastructure, adjacent Wetlands, or critical fish and wildlife habitat from damage or destruction as a result of proposed construction activities shall be designed by a professional Engineer. Design plans and detailed geotechnical recommendations may be provided in a document separate from the Geotechnical Report. When appropriate, such recommendations/plans may include, but are not necessarily limited to:

a. Design plans and associated design calculations for engineered structures or drainage systems (e.g., structural foundation requirements, retaining wall design, etc.).

b. Recommendations and requirements pertaining to the handling of surface and subsurface runoff in the developed condition.

c. Identification of necessary geotechnical inspections to assure conformance with the report mitigation and recommendations.

d. Proposed angles of cut and fill slopes, site Grading requirements, final site topography shown as two-foot contours, and the location of any proposed structures, on-site septic systems, wells, stormwater management features, or facilities associated with the development detailed within the body of the report and shown on a site map at the same scale as that required in subsection (A)(8) of this appendix.

e. Soil compaction criteria and compaction inspection requirements.

f. An analysis that indicates how the proposal meets the standards outlined in EMC Chapter 14.90.

g. Structural foundation requirements and estimated foundation settlement shall be provided if structures are proposed.

h. Lateral earth pressures.

i. Suitability of on-site soil for use as fill.

j. Mitigation measures for building construction on each lot for short plats, large lots, or formal plats such that additional Geotechnical Professional involvement is minimized during building construction.

B. The Geotechnical Report shall be prepared by an Engineering Geologist and shall be co-written by both an Engineering Geologist and professional Engineer where both geological interpretations and engineering analyses and designs are necessary or prudent in the mitigation of the landslide hazard.

C. The Geotechnical Professional(s) who prepared the Geotechnical Report shall stamp the report with their license stamp or seal.

D. The Department may request a Geotechnical Professional to provide additional information in the Geotechnical Report based upon existing conditions, changed conditions, or unique circumstances occurring on a case-by-case basis.

E. Geotechnical Reports shall be in conformance with a format that is pre-approved by the Department. (Ord. 05-247 § 1; Ord. 02-200 § 2).

Chapter 14.100**SEISMIC (EARTHQUAKE) HAZARD AREAS**

Sections:

- 14.100.010 Purpose.
- 14.100.020 Seismic Hazard Areas.
- 14.100.030 Seismic Hazard Area review procedures.
- 14.100.040 Seismic Hazard Area standards.
- 14.100.050 Buffer requirements.
- 14.100.060 Appendices.

14.100.010 Purpose.

Earthquakes have historically occurred throughout the Puget Sound region. Large earthquakes have caused loss of life and over a billion dollars in property damage. The purpose of this chapter is to protect the public health, safety, and general welfare of the citizens of Edgewood from the damaging effects of earthquakes. This chapter provides standards to ensure life safety and minimize public and private losses that may occur within a Seismic Hazard Area. (Ord. 02-200 § 2).

14.100.020 Seismic Hazard Areas.

A. General. Seismic Hazard Areas are areas subject to severe risk of damage as a result of earthquake-induced landsliding, seismic ground shaking, dynamic settlement, fault rupture, or soil liquefaction.

B. Potential Seismic Hazard Areas. Potential Seismic Hazard Areas are those areas where the suspected risk of earthquake induced landsliding, dynamic settlement, fault rupture, ground deformation caused by soil liquefaction, or flooding is sufficient to require a further Seismic Hazard Area review. These potential Seismic Hazard Areas are determined using the following criteria:

1. Earthquake Induced Landslide Hazard Areas. Areas identified as potential Landslide Hazard Areas in EMC Section 14.90.020.
2. Liquefaction or Dynamic Settlement Hazard Areas. Areas identified as high and moderate liquefaction and dynamic settlement hazard areas on the Geologically Hazardous Areas map.
3. Fault Rupture Hazard Areas.

C. Seismic Hazard Area Categories.

1. Earthquake Induced Landslide Hazard Areas. Earthquake induced Landslide Hazard Areas include slopes that can become unstable as a result of strong ground shaking, even though these areas may be stable under non-seismic conditions.
2. Liquefaction and/or Dynamic Settlement Hazard Areas.
 - a. Liquefaction hazard areas are areas underlain by unconsolidated (corrected Standard Penetration Test blow counts, $[(N_1)_{60}]$ less than 30) sandy or silt soils (Unified Soil Classification System S or M soil-types) and a shallow groundwater table (static groundwater depth less than 30 feet) capable of liquefying in response to earthquake shaking.
 - b. Dynamic settlement hazard areas are areas underlain by a significant thickness (more than 10 feet) of loose or soft soil not susceptible to liquefaction (e.g., peats or organic silts and clays, unsaturated loose sands or silts), but that could result in vertical settlement of the ground surface in response to earthquake shaking.
3. Fault Rupture Hazard Areas. Fault rupture hazard areas include:

- a. Active fault rupture hazard areas are areas where displacement (movement up, down, or laterally) of the ground surface has occurred during past earthquake(s) in the Holocene Epoch; and
- b. Areas adjacent to the active fault rupture hazard area that may be potentially subject to ground surface displacement in a future earthquake.

14.100.030 Seismic Hazard Area review procedures.**A. General Requirements.**

1. The City's Geologically Hazardous Areas map provides an indication of where potential Seismic Hazard Areas are located within the city.
2. The Department will complete a review of the Critical Areas Atlas – Seismic Hazard Area Map for any regulated activity to determine whether the site for a proposed regulated activity is located within a Seismic Hazard Area.
3. When the Department's maps indicate that the site for a proposed regulated activity is located within a potential liquefaction or dynamic settlement hazard area, the Department shall require the submittal of a geological assessment as outlined in subsection (B) of this section.
4. When the Department's maps indicate that the site for a proposed regulated activity is located within a potential fault rupture hazard area, the Department shall require the submittal of a geological assessment as outlined in subsection (B) of this section. The requirement to submit a geological assessment may be waived at the Department's discretion when it is determined that the proposed project area for the regulated activity is located outside the potential fault rupture hazard area.
5. When the Department's maps indicate that the site for a proposed regulated activity is or may be located within a potential earthquake-induced Landslide Hazard Area, the Department shall conduct a review pursuant to the requirements set forth in EMC Chapter 14.90.
6. Unless otherwise stated in this chapter, the Critical Area protective measure provisions contained in EMC Chapter 14.10 shall apply.

B. Geological Assessments. A geological assessment is a site investigation process to evaluate the on-site geology affecting a subject property and define the extent and severity of potential seismic hazards.

1. A geological assessment shall be required when the Department's maps, sources, or field investigation indicate a site contains a potential liquefaction, dynamic settlement, or fault rupture hazard area. Geological assessments shall be submitted to the Department for review and approval together with a Seismic Hazard Area Application.
2. A Geotechnical Professional(s) shall complete a field investigation and geological assessment to determine whether or not the site for a proposed regulated activity is located within a liquefaction or dynamic settlement hazard area.
 - a. The geological assessment shall be submitted in the form of a geotechnical verification when the Geotechnical Professional(s) finds that no liquefaction or dynamic settlement hazard area exists within the proposed project area.
 - b. The geological assessment shall be submitted in the form of a Geotechnical Report when the Geotechnical Professional(s) finds that a liquefaction or dynamic settlement hazard area exists within the proposed project area.
3. A Geotechnical Professional shall complete a field investigation and geological assessment presented in the form of a Geotechnical Report to determine whether or not the site for a proposed regulated activity is located within a fault rupture hazard area. Any structural recommendations proposed to mitigate the fault rupture hazard that are included in the Geotechnical Report shall be prepared by an Engineer.

4. All geological assessments for seismic hazards submitted under this chapter shall include, at a minimum, the following items identified in paragraphs a-i:

- a. All of the items required per EMC Section 14.10.080.C.
- b. The parcel number(s) of the subject property.
- c. Site address, if the City has assigned one.
- d. A brief description of the project (including the proposed land use) and the area to be developed.
- e. A map showing the property lines for the site, existing two-foot contours of the existing site topography, and the location of any existing structures, utilities, wells, stormwater or septic systems, or other developments.
- f. A site plan delineating the limits of the proposed development and the location of all areas of the site subject to potential seismic hazards based on the Geologically Hazardous Areas map and, if applicable, limits of associated Buffers.
- g. A description of the surface and subsurface geology, hydrology, soils, and vegetation of the site.
- h. A detailed overview of the field investigations, published data and references, data and conclusions from past geological assessments or geotechnical investigations of the site, site-specific measurements, tests, investigations, or studies, as well as the methods of data analysis and calculations that support the determination regarding whether liquefaction and/or dynamic settlement hazards are present on the site.
- i. The results, conclusions, and recommendations resulting from the geological assessment of the liquefaction and/or dynamic settlement hazards on the subject property as prepared by a Geotechnical Professional(s).

5. Geological assessments shall be prepared, signed, stamped, and dated by the appropriate Geotechnical Professional(s) and the format shall be pre-approved by the Department.

6. Geological assessments that do not contain the minimum required information will be returned to the Geotechnical Professional(s) for revision.

7. The Department shall review the geological assessment and either:

- a. Accept the geological assessment and approve the Application; or
- b. Reject the geological assessment and require revisions or additional information.

8. A geological assessment for a specific site may be valid for a period of up to five years when the proposed land use activity and surrounding site conditions are unchanged. However, if any environmental conditions associated with the site change during that five-year period, the applicant may be required to submit an amendment to the geological assessment. (Ord. 02-200 § 2).

14.100.040 Seismic Hazard Area standards.

A. Earthquake Induced Landslide Hazard Areas. All standards set forth in EMC Chapter 14.90 shall apply to earthquake induced Landslide Hazard Areas.

B. Liquefaction or Dynamic Settlement Hazard Areas.

1. All building structures shall conform to the standards set forth in EMC Title 15, Buildings and Construction.
2. Utility Lines. Utility lines, except for gas pipelines, which are prohibited, will be permitted when no other conveyance alternative is available. The line shall be located above ground and properly anchored and/or

designed so that it will continue to function in the event of seismically induced ground deformation. Provision for automatic shut-off of utilities in a ground-rupturing event will be required.

3. Roads, Bridges, and Trails. Roads, bridges, and trails shall be allowed when mitigation measures are provided that ensure the roadway prism or bridge structure will not be susceptible to damage from seismic induced ground deformation. Mitigation measures shall be designed for static and seismic loading conditions in accordance with the most recent version of the American Association of State Highway and Transportation Officials (AASHTO) Manual and also for an estimated range of ground surface offset presented in the Geotechnical Report.

C. Fault Rupture Hazard Areas. Any development, Encroachment, Clearing and Grading, or building structures shall be prohibited within fault rupture hazard areas and associated Buffers except as specified in the following standards:

1. Utility Lines. Utility lines, except for gas pipelines, which are prohibited, will be permitted when no other conveyance alternative is available. The line shall be located above ground and properly anchored and/or designed so that it will continue to function in the event of seismically-induced ground deformation. Provision for automatic shutoff of utilities in a ground-rupturing event will be required.

2. Roads, Bridges, and Trails. Roads, bridges, and trails shall be allowed when all of the following conditions have been met:

a. Mitigation measures are provided that ensure the roadway prism and/or bridge structure will not be susceptible to damage from seismically-induced ground deformation. Mitigation measures shall be designed for static and seismic loading conditions in accordance with the most recent version of the American Association of State Highway and Transportation Officials (AASHTO) Manual and also for an estimated range of ground surface offset presented in the Geotechnical Report.

b. The road is not a sole access for a development. (Ord. 02-200 § 2).

14.100.050 Buffer requirements.

A. Determining Buffer Widths.

1. The Buffer width shall be measured on a horizontal plane from a perpendicular line established at the edge of the fault rupture hazard area limits.

2. A Buffer is an area that is adjacent to a fault rupture hazard area that may be potentially subject to ground surface displacement in a future earthquake. No development shall be permitted within a fault rupture hazard area and its associated Buffer. The required Buffer width is the greater amount of the following distances:

a. Fifty feet from all edges of a fault rupture hazard area, except for high occupancy or essential facilities, where the minimum Buffer distance shall be 100 feet; or

b. The required Buffer width is the minimum distance recommended by the Geotechnical Professional(s).

B. Modification of Buffer Widths. The Department may require a larger Buffer width than the Buffer distance, as determined in subsection (A) of this section, if the Department determines the standard or proposed Buffer is not adequate to protect the health, safety, or welfare of any proposed development. (Ord. 02-200 § 2).

14.100.060 Appendices.

A. Geological Assessments – Liquefaction or Dynamic Settlement Hazard Areas.

B. Geological Assessments – Fault Rupture Hazard Area Geotechnical Report.

APPENDIX A

GEOLOGICAL ASSESSMENTS – LIQUEFACTION OR DYNAMIC SETTLEMENT HAZARD AREAS

Article I. Geotechnical Verification

A. A geotechnical verification shall, at a minimum, include the following:

1. The general Critical Areas report requirements.
2. The geotechnical verification shall include all mandatory items listed in EMC Chapter 14.100.
3. The geological assessment must include a determination that no liquefaction or dynamic settlement hazard exists within the proposed project area.
4. The verification shall include an accurate site plan drawn at a scale of one inch equals 20 feet, one inch equals 30 feet, one inch equals 50 feet (or other scale deemed appropriate by the Department) is required. The Department may require that the site plan information be based on a field survey by a licensed surveyor. The site plan shall include:
 - a. Property lines for the site, and the location of any existing structures.
 - b. The full geographical limits of the proposed project area or conceptual project area (i.e., area to be developed) and the location of any proposed structures, on-site septic systems, wells, and stormwater management features or facilities associated with the development, if known.

B. The Geotechnical Professional(s) who prepared the geotechnical verification shall stamp the verification with their license stamp or seal.

C. Hold harmless clauses, disclaimers, and limitations are not allowed within a geotechnical verification.

Article II Geotechnical Report

A. A Geotechnical Report shall, at a minimum, include the following:

1. The general Critical Areas report requirements.
2. The document shall include all mandatory items listed in EMC Chapter 14.100. The report shall be prepared by an Engineer and shall be co-written by an Engineering Geologist where geological interpretations and conclusions critical to the assessment of liquefaction and/or dynamic settlement hazard and potential effects are necessary or prudent. The report shall specify the desired performance level of the structures and other development facilities, e.g., safety to building occupants, minimal damage to structure, post-earthquake serviceability for pre-earthquake operations, or no damage.
3. The results, conclusions, and recommendations resulting from the geological assessment of the liquefaction or dynamic settlement hazards on the subject property as prepared by the Geotechnical Professional(s).
4. The geological assessment Geotechnical Report shall include:
 - a. A statement that the proposed project area falls within a liquefaction and/or dynamic settlement hazard area.
 - b. A detailed engineering evaluation of expected ground displacements or other liquefaction or dynamic settlement effects, e.g., bearing failures, flotation of buried tanks, or similar, and proposed mitigation measures to ensure an acceptable level of risk for the proposed structure type or other development facilities, as well as the proposed land use type or occupancy category. The minimum level of acceptable risk for any proposed structure or development Facility shall ensure the life safety of any occupant. Where appropriate, a range of mitigation options should be considered depending on site conditions, the intended use of the structures, and acceptable levels of settlement.
5. The report shall include a site plan drawn to scale. The Department may require that the site plan information be based on a field survey by a licensed surveyor. The site plan shall include:

- a. Property lines for the site and the location of any existing structures.
- b. The limits or location of any liquefaction or dynamic settlement hazard area(s).
- c. The full geographical limits of the proposed project area or conceptual project area (i.e., area to be developed) and the location of any proposed structures, on-site septic systems, wells, and stormwater management features or facilities associated with the development, if known.
- d. Location and unique identifier of geotechnical explorations used to characterize subsurface conditions.

6. The geotechnical study shall include field exploration sufficient to assess the potential for liquefaction or dynamic settlement hazards and options for mitigation of those hazards. Copies of the exploration logs shall be provided in the report. The geotechnical study shall include field exploration sufficient to assess the potential for liquefaction or dynamic settlement hazards and options for mitigation of those hazards. Copies of the exploration logs shall be included in the report. The project Geotechnical Professional must provide justification for the scope of the field exploration program. The City's Geotechnical Professional reserves the right to request additional exploration if deemed appropriate. If a dispute arises between the City's Geotechnical Professional and the project Geotechnical Professional regarding the scope of the field exploration, the City reserves the right to require an independent, third party review to be paid for by the applicant to resolve the dispute.

7. If beneficial to the assessment of seismic hazards for the project, the three-dimensional subsurface conditions at the site shall be presented using one or more cross-sections showing location and depth penetration of borings or CPT soundings, interpretation of the geometry of major soil units, and projected location of the static groundwater surface determined from the subsurface exploration. The cross-sections shall be presented at a scale of one inch equals 20 feet, one inch equals 30 feet, one inch equals 50 feet (or other scale deemed appropriate by the Department). Each cross-section shall have a legend with a description of the various major soil units. The City's Geotechnical Professional reserves the right to request inclusion of one or more cross sections in the Geotechnical Report. If a dispute arises between the project Geotechnical Professional and the City's Geotechnical Professional regarding this issue, then the City reserves the right to require an independent, third party review to be paid for by the applicant to resolve the dispute.

8. All assessments of liquefaction or dynamic settlement hazards and effects will be based on a design earthquake using ground motion parameters consistent and equivalent to those specified in the most current version of the International Building Code. These assessments shall use the shallowest groundwater table observed during or inferred from subsurface exploration and characterization, e.g., the measured depth of static groundwater immediately prior to abandonment of borings, or observation of iron-oxide mottling of soils samples.

9. Results of laboratory testing of samples retrieved during drilling and sampling shall be presented in order to support the values of fines contents used in subsequent analysis of liquefaction and/or dynamic settlement hazard. Where only CPT methods are used in site assessment, the correlation between fines content and CPT measurements will be discussed and documented. This documentation will require rigorous correlation of CPT and fines content measurements from similar geological deposits within the Puget Sound region.

10. The Geotechnical Report shall include a detailed assessment of the liquefaction and/or dynamic settlement hazard based on analysis of available subsurface data using state-of-the-practice methodologies. The results of the analysis shall be documented, and all results of intermediate and final calculations and results, including factors of safety, shall be included.

11. When appropriate, the Geotechnical Report shall include an assessment of the potential for large lateral spreads or flow failures, bearing failures, settlement, limited lateral displacement, and flotation of buried facilities. The methodologies used must be, at a minimum, state-of-the-practice, and the conclusions regarding the potential and severity of the possible liquefaction and/or dynamic settlement induced failure modes shall be presented.

12. Alternative mitigative measures including structural and foundation design options and/or soil improvement techniques shall be evaluated and compared for their effectiveness in reaching the level of performance specified in the report introduction. Effectiveness of soil improvement techniques shall be specified in terms of post-treatment densification or strength improvement as measured by appropriate subsurface investigation and testing. The extent of the post-treatment verification testing shall be provided on a site map at the same scale as the map presented in subsection (A)(4) of this article. Geotechnical review of all final plans is required and the findings of the review shall be documented in writing.

B. The Geotechnical Professional(s) who prepared the Geotechnical Report shall stamp the report with their license stamp or seal.

C. Hold harmless clauses, disclaimers, and limitations are not allowed within a Geotechnical Report.

APPENDIX B

GEOLOGICAL ASSESSMENTS – FAULT RUPTURE HAZARD AREA GEOTECHNICAL REPORT

A. A Geotechnical Report shall, at a minimum, include the following:

1. The general Critical Areas report requirements contained herein.
2. The report shall be prepared by an Engineer and shall be co-written by an Engineering Geologist where geological interpretations and conclusions critical to the assessment of liquefaction and/or dynamic settlement hazard and potential effects are necessary or prudent.
3. The following topics should be considered and addressed in detail where essential to support opinions, conclusions, and recommendations in any geologic report on faults. It is not expected that all the topics or investigative methods would be necessary in a single investigation. In specific cases, it may be necessary to extend some of the investigative methods well beyond the site or property being investigated.
 - a. Purpose and scope of investigation; description of proposed development.
 - b. Geologic and tectonic setting. Include seismicity and earthquake history.
 - c. Site description and conditions, including dates of site visits and observations. Include information on geologic units, graded and filled areas, vegetation, existing structures, and other factors that may affect the choice of investigative methods and interpretation of data.
 - d. Methods of Investigation.
 - i. Review of published and unpublished literature, maps, and records concerning geologic units, faults, groundwater barriers, and other factors.
 - ii. Stereoscopic interpretation of aerial photographs, review of LiDAR based topography, and other remotely sensed images to detect fault-related topography (geomorphic features), vegetation and soil contrasts, and other lineaments of possible fault origin. The area interpreted usually should extend beyond the site boundaries.
 - iii. Surface observations, including mapping of geologic and soil units, geologic structures, geomorphic features and surfaces, springs, deformation of engineered structures due to fault creep, both on and beyond the site.
 - iv. Subsurface Investigations.

(A) Trenching and other excavations to permit detailed and direct observation of continuously exposed geologic units, soils, and structures; must be of adequate depth and be carefully logged (Taylor & Cluff 1973, Hatheway & Leighton 1979, McCalpin 1996b).

(B) Borings and test pits to permit collection of data on geologic units and groundwater at specific locations. Data points must be sufficient in number and spaced adequately to permit valid correlations and interpretations.

(C) Cone penetrometer testing (CPT) (Grant et al., 1997, Edelman et al., 1996). CPT must be done in conjunction with continuously logged borings to correlate CPT results with on-site materials. The number of borings and spacing of CPT soundings should be sufficient to adequately image site stratigraphy. The existence and location of a fault based on CPT data are interpretative.

v. Geophysical Investigations. These are indirect methods that require a knowledge of specific geologic conditions for reliable interpretations. They should seldom, if ever, be employed alone without knowledge of the geology (Chase & Chapman 1976). Geophysical methods alone never prove the absence of a fault nor do they identify the recency of activity. The types of equipment and techniques used should be described and supporting data presented (California Board of Registration for Geologists and Geophysicists, 1993).

(A) High-resolution seismic reflection (Stephenson et al., 1995, McCalpin, 1996b).

(B) Ground penetrating radar (Cai et al., 1996).

(C) Other methods include: seismic refraction, magnetic profiling, electrical resistivity, and gravity (McCalpin, 1996b).

vi. Age-dating techniques are essential for determining the ages of geologic units, soils, and surfaces that bracket the time(s) of faulting (Pierce 1986, Birkeland et al., 1991, Rutter & Catto, 1995, McCalpin, 1996a).

(A) Radiometric dating (especially ¹⁴C).

(B) Soil-profile development.

(C) Rock and mineral weathering.

(D) Landform development.

(E) Stratigraphic correlation of rocks, minerals, and fossils.

(F) Other methods – artifacts, historical records, tephrochronology, fault scarp modeling, thermoluminescence, lichenometry, paleomagnetism, dendrochronology, etc.

vii. Other methods should be included when special conditions permit or requirements for critical structures demand a more intensive investigation.

(A) Aerial reconnaissance overflights.

(B) Geodetic and strain measurements.

(C) Microseismicity monitoring.

e. Conclusions.

i. Location and existence (or absence) of hazardous faults on or adjacent to the site; ages of past rupture events.

ii. Type of faults and nature of anticipated offset, including sense and magnitude of displacement, if possible.

iii. Distribution of primary and secondary faulting (fault zone width) and fault-related deformation.

iv. Probability of, or relative potential for, future surface displacement. The likelihood of future ground rupture seldom can be stated mathematically, but may be stated in semiquantitative terms such as low, moderate, or high, or in terms of slip rates determined for specific fault segments.

v. Degree of confidence in, and limitations of data and conclusions.

f. Recommendations.

i. The recommended increase from the standard Buffer distance (50 feet) of proposed structures from fault rupture hazard areas. The recommended Buffer distance generally will depend on the quality of data and type and complexity of fault(s) encountered at the site and the proposed land use type (i.e., occupancy). In order to establish an appropriate Buffer distance from a fault located by indirect or interpretative methods (e.g., borings or cone penetrometer testing), the area between data points also should be considered underlain by a fault unless additional data are used to more precisely locate the fault. Additional measures (e.g., strengthened foundations, engineering design, and flexible utility connections) to accommodate warping and distributive deformation associated with faulting (Lazarte and others, 1994).

ii. Risk evaluation relative to the proposed development.

iii. Limitations of the investigation; need for additional studies.

g. References.

i. Literature and records cited or reviewed; citations should be complete.

ii. Aerial photographs or images interpreted – list type, data, scale, source, and index numbers.

iii. Other sources of information, including well records, personal communications, and other data sources.

h. Illustrations. The following illustrations should be provided:

i. A location map that identifies site locality, significant faults, geographic features, regional geology, seismic epicenters, and other pertinent data; 1:24,000 scale is recommended.

ii. A site development map that shows site boundaries, existing and proposed structures and limits of the proposed project area, graded areas, streets, exploratory trenches, borings geophysical traverses, locations of faults, and other data; recommended scale is 1:2,400 (one inch equals 200 feet), or larger.

iii. A geologic map that shows the distribution of geologic units (if more than one), faults and other structures, geomorphic features, aerial photographic lineaments, and springs; on topographic map 1:24,000 scale or larger; can be combined with subsection (B)(h)(i) or (ii) of this appendix.

iv. Geologic cross-sections, if needed, to provide three-dimensional picture.

v. Logs of exploratory trenches and borings that show details of observed features and conditions (note: these should not be generalized or diagrammatic). Trench logs should show topographic profile and geologic structure at a 1:1 horizontal to vertical scale; scale should be 1:60 (one inch equals five feet) or larger.

vi. Geophysical data and geologic interpretations.

i. Appendix. Attach any supporting data not included above, e.g., water well data, photographs, and aerial photographs.

4. The Geotechnical Professional who prepared the Geotechnical Report shall stamp the report with their license stamp or seal.

5. The Department may request a Geotechnical Professional to provide additional information in the Geotechnical Report based upon existing conditions, changed conditions, or unique circumstances occurring on a case-by-case basis.

6. Hold harmless clauses, disclaimers, and limitations are not allowed to be included, neither expressly nor implied, within a geological assessment. (Ord. 02-200 § 2).

Chapter 14.110**EROSION HAZARD AREAS**

Sections:

- 14.110.010 Purpose.
- 14.110.020 Erosion Hazard Area.
- 14.110.030 Erosion Hazard Area review procedures.
- 14.110.040 Erosion Hazard Area standards.
- 14.110.050 Buffer requirements.
- 14.110.060 Appendices.

14.110.010 Purpose.

The following statements describe the purpose of this chapter:

- A. Protect human life and health;
- B. Regulate uses of land in order to avoid damage to structures and property being developed and damage to neighboring land and structures;
- C. Identify and map any Erosion Hazard Area;
- D. Minimize impacts on Wetlands and critical fish and wildlife species and their associated habitat that can result from erosion;
- E. Establish a permit requirement and review procedures for development proposals in areas with potential erosion hazards;
- F. Strike a balance between the need to maintain natural shoreline erosion/regression processes and the need to protect existing and proposed development. (Ord. 02-200 § 2).

14.110.020 Erosion Hazard Area.

A. Erosion Hazard Area Indicators. Erosion Hazard Areas are areas potentially subject to land regression or retreat due to a combination of geologic, seismic, hydrologic, or manmade factors. Erosion Hazard Areas can be identified by indicators of active land retreat as a result of Fluvial Processes.

B. Erosion Hazard Area Categories.

1. Potential Erosion Hazard Areas. Potential Erosion Hazard Areas, as depicted on the Geologically Hazardous Areas map, are those areas where the suspected risk of erosion through either loss of soil, slope instability, or land regression is sufficient to require additional review to assess the potential for active erosion activity or apply additional standards. These potential Erosion Hazard Areas are determined using the following criteria:

- a. Shoreline Erosion Hazard Areas. Areas within 200 feet of a freshwater lake, pond, or shoreline. The distance shall be measured landward perpendicularly from the edge of the ordinary high water mark.
- b. Riverine Erosion Hazard Areas. The rivers subject to regulation as a CMZ listed in EMC Section 14.80.030.B.4.
- c. Soil Erosion Hazard Areas. Areas identified as having slopes of 20 percent or greater and that are classified as having severe, or very severe erosion potential by the Soil Conservation Service, United States Department of Agriculture (USDA).

2. Active Shoreline Erosion Hazard Areas. Land areas located directly adjacent to surface water bodies that, through the geological assessment process, are identified as regressing, retreating, or potentially unstable as a

result of undercutting by wave action or bluff erosion. The limits of the active shoreline Erosion Hazard Area shall extend landward to include that land area that is calculated, based on the rate of regression, to be subject to erosion processes within the next 10-year time period.

3. Riverine Erosion Hazard Areas or CMZs. Riverine Erosion Hazard Areas are located within the lateral extent of likely watercourse channel movement due to bank destabilization and erosion, rapid incision, and shifts in location of watercourse channels. Rivers and streams subject to erosion are regulated as a CMZ.

4. Soil Erosion Hazard Areas. Soil Erosion Hazard Areas are identified by the presence or absence of natural vegetative cover, soil texture condition, slope, and rainfall patterns, or man-induced changes to such characteristics that create site conditions which are vulnerable to erosion of the upper soil horizon. Soil Erosion Hazard Areas include those areas with slopes of 20 percent or greater and that are classified as having severe, or very severe erosion potential by the USDA Natural Resources Conservation Service. (Ord. 02-200 § 2).

14.110.030 Erosion Hazard Area review procedures.

A. General Requirements.

1. The City's Geologically Hazardous Areas map provides an indication of where potential Erosion Hazard Areas are located. The actual presence or location of an Erosion Hazard Area or additional potential Erosion Hazard Area that have not been mapped, but may be present on or adjacent to a site, shall be determined using the procedures and criteria established in this chapter.
2. The Department will complete a review of the Geologically Hazardous Areas map, and any other source documents for any proposed regulated activity to determine whether the site for the regulated activity is located within a potential Erosion Hazard Area.
3. When the Department's maps, sources, or field investigations indicate that the site for a proposed regulated activity is located within a potential shoreline Erosion Hazard Area, the Department shall require a geological assessment as outlined in subsection (B) of this section.
4. When the Department's maps, sources, or field investigations indicate that the proposed project area for a regulated activity is located within a potential riverine Erosion Hazard Area or CMZ, the Department shall conduct a review pursuant to EMC Chapter 14.80.
5. When the Department's maps, sources, or field investigations indicate that the proposed project area for a regulated activity is located within a potential soil Erosion Hazard Area, the Department shall require submittal of an erosion control plan pursuant to the requirements set forth in EMC Title 15.
6. Applicants requesting to develop a bulkhead along a shoreline shall be required to submit a Geotechnical Report.

B. Geological Assessment. A geological assessment is a site investigation process to evaluate the on-site geology affecting a subject property and proposed development.

1. Geological assessments shall be submitted to the Department for review and approval together with a shoreline Erosion Hazard Area Application.
2. The geological assessment shall include a field investigation and may also include review of public records and documentation, analysis of historical air photos, LiDAR mapping, published data and references, etc.
3. The geological assessment shall include the following information and analysis identified in paragraphs a-d:
 - a. An analysis of the shoreline erosion processes on and in the vicinity of the site including an evaluation of erosion and shoreline retreat that has occurred over the past decade and an estimated probable rate of erosion based upon the historic rate of erosion that has occurred on the site.

- b. A determination of which areas on the site meet the criteria for an active shoreline Erosion Hazard Area.
- c. A determination of the area on the site or in the vicinity of the site that will experience regression in the next 120 years given natural processes.
- d. All of the information required per EMC Section 14.10.080.C.

4. Geological assessments shall be prepared, signed, and dated by a Geotechnical Professional and the format shall be pre-approved by the Department.

5. A Geotechnical Professional shall complete a field investigation and geological assessment to determine whether or not an active shoreline Erosion Hazard Area exists within 200 feet of the site.

- a. The geological assessment shall be submitted in the form of a geotechnical letter when the Geotechnical Professional finds that no active shoreline Erosion Hazard Area exists within 200 feet of the site.
- b. The geological assessment shall be submitted in the form of geotechnical verification when the Geotechnical Professional finds that an active shoreline Erosion Hazard Area exists but is located more than 200 feet away from the proposed project area.
- c. The geological assessment shall be submitted in the form of a Geotechnical Report when the Geotechnical Professional finds that an active shoreline Erosion Hazard Area exists within 200 feet of the proposed project area or when a Geotechnical Professional determines that mitigation measures, such as a bulkhead, are necessary in order to construct or develop within a potential shoreline Erosion Hazard Area.

6. The Department shall review the geological assessment and either:

- a. Accept the geological assessment and approve the Application; or
- b. Reject the geological assessment and require revisions or additional information.

7. A geological assessment for a specific site may be valid for a period of up to five years when the proposed land use activity and surrounding site conditions are unchanged. However, if any environmental conditions associated with the site change during that five-year period, the applicant may be required to submit an amendment to the geological assessment.

C. Riverine Erosion Hazard Area (Channel Migration Zones) Review. Riverine Erosion Hazard Areas shall be reviewed pursuant to the requirements set forth in EMC Chapter 14.80.

D. Soil Erosion Hazard Area Review. Soil Erosion Hazard Areas shall be reviewed pursuant to the requirements set forth in EMC Title 15, Buildings and Construction. (Ord. 02-200 § 2).

14.110.040 Erosion Hazard Area standards.

A. Active Shoreline Erosion Hazard Areas. Any development, Encroachment, Clearing and Grading, timber harvest, building structures, impervious surfaces, and vegetation removal shall be prohibited within active shoreline Erosion Hazard Areas and associated Buffers except as specified in the following standards:

- 1. Shoreline Erosion Protection Measures. Shoreline erosion protection measures located within or adjacent to freshwater or marine shorelines shall be allowed subject to the following:
 - a. The proposed shoreline protection measure shall comply with the standards set forth in EMC Chapter 14.50 – Critical Fish and Wildlife Habitat Areas.
 - b. A geological assessment Geotechnical Report that indicates that the shoreline is currently experiencing active erosion, i.e., land retreat or regression.

c. The use of the shoreline erosion protection measure will not cause a significant adverse impact on adjacent properties or critical fish and wildlife species and their associated habitat (i.e., increase erosion on adjacent properties).

d. The use of Soft Armoring Techniques is the preferred method for shoreline protection.

e. Hard Armoring shoreline erosion control measures shall be approved only when a geological assessment-shoreline erosion Geotechnical Report has been completed and indicates the following:

i. The regression has been monitored on a yearly interval for a period of at least five consecutive years prior to allowing a bulkhead to be constructed. This monitoring shall be conducted by field survey measurements of a licensed surveyor. The Department may shorten or eliminate the monitoring period if there are indicators that the regression rate is rapid and an existing structure may be threatened prior to completion of the monitoring period;

ii. The use of beach nourishment alone or in combination with Soft Armoring Techniques is not adequate to protect the property from shoreline erosion processes; and

iii. The property contains an existing structure(s) that will be threatened within the next 10 years or the buildability of an undeveloped site will be threatened within the next 10 years if a Hard Armoring method of shoreline erosion protection is not provided.

f. Hard Armoring shoreline protection measures shall not be allowed when structures can be located landward of the 120-year rate of regression area.

2. Stormwater Conveyance. Surface drainage into an active shoreline Erosion Hazard Area should be avoided. If there are no other alternatives for discharge, then drainage must be collected upland of the top of the active shoreline Erosion Hazard Area and directed downhill in a high density polyethylene stormwater pipe with fuse welded joints that includes an energy dissipating device at the base of the active Landslide Hazard Area. The pipe shall be located on the surface of the ground and be properly anchored so that it will continue to function in the event of an underlying slide. The number of these pipes should be minimized along the slope frontage.

3. Utility Lines. Utility lines will be permitted when no other conveyance alternative is available. The line shall be located above ground and properly anchored and/or designed so that it will continue to function in the event of an underlying slide.

4. Roads, Bridges, and Trails. Roads, bridges, and trails shall be allowed when all of the following conditions have been met:

a. Mitigation measures are provided that ensure the roadway prism and/or bridge structure will not be susceptible to damage from active erosion.

b. The road is not a sole access for a development.

B. Shoreline Erosion Hazard Management Area. All Regulated Activities such as but not limited to building structures, impervious surfaces, vegetation removal, timber harvest, or Grading activities may be allowed in areas located within 200 feet of an active shoreline Erosion Hazard Area subject to the following standards:

1. The Department reviews and approves a geological assessment – shoreline erosion hazard Geotechnical Report and determines that the proposed project area is located outside an active shoreline hazard area and the required Buffer.

2. The proposed recommendations and mitigation measures contained within the Geotechnical Report are adequate to reduce or mitigate risks to the natural environment, health, and safety.

3. Surface drainage from the proposed project area, including downspouts, landscape irrigation systems, and runoff from paved or unpaved surfaces upland of the shoreline, shall not be directed through an active shoreline

Erosion Hazard Area or its associated Buffer unless it is conveyed in conformance with the provisions in subsection (A)(2) of this section.

4. Stormwater retention and detention systems, such as dry wells and infiltration systems utilizing buried pipe or french drains, shall not be permitted unless such systems are designed by a professional Engineer and the Geotechnical Report indicates that such a system will not affect the stability of the shoreline.

5. Proposed developments, with the exception of shoreline erosion protection measures, shall be sited far enough from regressing shorelines to ensure 120 years of useful life for any proposed structures or infrastructure.

C. Riverine Erosion Hazard Area or CMZ Review. Riverine Erosion Hazard Areas shall be reviewed pursuant to the requirements set forth in EMC Chapter 14.80.

D. Soil Erosion Hazard Area Review. Soil Erosion Hazard Areas shall be reviewed pursuant to the requirements set forth in EMC Title 15, Buildings and Construction. (Ord. 02-200 § 2).

14.110.050 Buffer requirements.

A. Determining Buffer Widths.

1. The Buffer width shall be measured on a horizontal plane from a perpendicular line established at the edge of the active shoreline Erosion Hazard Area limits.

2. An undisturbed Buffer of existing vegetation shall be required for an active shoreline Erosion Hazard Area. The required standard Buffer width is either a or b below, whichever is greater:

a. Fifty feet from all edges of the active shoreline Erosion Hazard Area limits;

b. A distance of one-third the height of the slope at the top of the slope and a distance of one-half the height at the bottom of the slope; or

3. The Buffer width may be reduced or eliminated upon the Director's approval of a Geotechnical Report that demonstrates that such a reduction would not result in an increased risk of erosion either on or off of the subject property.

B. Modification of Buffer Widths. The Department may require a larger Buffer width than the standard Buffer distance, as determined in subsection (A) of this section, if any of the following are identified through the geological assessment process:

1. The adjacent land is susceptible to severe erosion and erosion control measures will not effectively prevent adverse impacts.

2. The area has a severe risk of slope failure or downslope stormwater drainage impacts. (Ord. 02-200 § 2).

14.110.060 Appendices.

A. Geological Assessment – Shoreline Erosion Hazard Geotechnical Letter.

B. Geological Assessment – Shoreline Erosion Hazard Geotechnical Verification.

C. Geological Assessment – Shoreline Erosion Hazard Geotechnical Report.

APPENDIX A

GEOLOGICAL ASSESSMENT – SHORELINE EROSION HAZARD GEOTECHNICAL LETTER

A. A geotechnical letter shall, at a minimum, include the following:

1. The general Critical Areas report requirements.
 2. A summary of the findings of the site visit, a site plan, and a summary of the findings from the review of documents listed in EMC 14.110.030.B.2. The appropriate professional preparing the geotechnical letter shall provide conclusions and recommendations as to shoreline stability for the proposed development.
- B. The Geotechnical Professional who prepared the geotechnical letter shall stamp the letter with his or her seal.
- C. Hold harmless clauses, disclaimers, and limitations are not allowed within a geotechnical letter.

APPENDIX B

GEOLOGICAL ASSESSMENT – SHORELINE EROSION HAZARD GEOTECHNICAL VERIFICATION

- A. A geotechnical verification shall, at a minimum, include the following:
1. The general Critical Areas report requirements.
 2. A summary of the results, conclusions, and recommendations resulting from the geological assessment, as set forth in EMC 14.110.030.B. The verification will also include a summary of the findings of the site visit, a site plan, and a summary of the findings from the review of the documents listed in EMC 14.110.030.B.2.
 3. An accurate site plan drawn at a scale of one inch equals 20 feet, one inch equals 30 feet, one inch equals 50 feet (or other scale deemed appropriate by the Department) is required. The Department may require that the site plan information listed below be based on a field survey by a licensed surveyor. The site plan shall include:
 - a. The limits and location of the active shoreline Erosion Hazard Area(s).
 - b. The limits of the required shoreline erosion hazard Buffer.
 - c. The limits and location of the shoreline erosion hazard management area.
 - d. The limits and location of the 120-year regression area.
 - e. The location of any existing structures, utilities, on-site septic systems, wells, and stormwater management facilities.
 - f. The location of any proposed structures, utilities, on-site septic systems, wells, and stormwater management facilities.
 - g. The full geographical limits of the proposed project area to be developed.
 - h. Dimension of the closest distance between the identified active shoreline hazard area boundary and the proposed project area.
 - i. Dimension of the closest distance between the 120-year regression line and the proposed project area.
 - j. Existing contours on the site at two-foot intervals.
 - k. Property lines for the site.
 - l. North arrow and scale.
- B. The Geotechnical Professional who prepared the geotechnical verification shall stamp the verification with their seal.
- C. Hold harmless clauses, disclaimers, and limitations are not allowed within a geotechnical verification.

APPENDIX C

GEOLOGICAL ASSESSMENT – SHORELINE EROSION HAZARD GEOTECHNICAL REPORT

A. A Geotechnical Report shall, at a minimum, include the following:

1. The general Critical Areas report requirements.
2. A summary of the results, conclusions, and recommendations resulting from the geological assessment. The report will also include a summary of the findings of the site visit, a site plan, and a summary of the findings from the review of documents listed in EMC 14.110.030.B.2. The summary shall specifically address:
 - a. Whether it is possible given the physical constraints of the property (size, shape, building setbacks, utility requirements, etc.) to locate the proposed development outside of the 120-year area of regression based on natural shoreline processes.
 - b. If it is not possible to locate the development outside of the 120-year area of regression (based on natural processes), determine whether beach nourishment, Soft Armoring Techniques, or both can be used to slow the rate of regression such that the proposed development is no longer within the 120-year regression area.
 - c. If it is not possible to locate the development outside of the 120-year area of regression, based on the use of beach nourishment or Soft Armoring Techniques, outline the strategy, to monitor the rate of regression on the site.
 - d. Determine whether any proposed shoreline erosion protection measures will cause an increase in the rate of regression on neighboring properties.
3. An accurate site plan drawn at a scale of one inch equals 20 feet, one inch equals 30 feet, one inch equals 50 feet (or other scale deemed appropriate by the Department) is required. The Department may require that the site plan information listed below be based on a field survey by a licensed surveyor. The site plan shall include:
 - a. The limits and location of the active shoreline Erosion Hazard Area(s).
 - b. The limits of the required shoreline erosion hazard Buffer based upon the requirements.
 - c. The limits and location of the shoreline erosion hazard management area.
 - d. The limits and location of the 120-year regression area based on natural shoreline processes and, if applicable, based upon proposed shoreline protection measures.
 - e. The location of any existing structures, utilities, on-site septic systems, wells, and stormwater management facilities.
 - f. The location of any proposed structures, utilities, on-site septic systems, wells, and stormwater management facilities.
 - g. The full geographical limits of the proposed project area to be developed.
 - h. Dimension of the closest distance between the identified active shoreline hazard area boundary and the proposed project area.
 - i. Dimension of the closest distance between the 120-year regression line and the proposed project area.
 - j. Existing contours on the site at two-foot intervals.
 - k. Property lines for the site.
 - l. North arrow and scale.

4. A discussion of any proposed shoreline protection measures including design and construction drawings is required.

5. A list of references utilized in preparation of the report.

B. The Geotechnical Professional(s) who performed the geological assessment shall stamp the report with their license stamp or seal. The report must be co-authored by a licensed professional Engineer when engineering designs or interpretations are necessary to address the report requirements. The Engineer must also stamp the report with their license stamp or seal.

C. The Department may request a Geotechnical Professional to provide additional information in the Geotechnical Report based upon existing conditions, changed conditions, or unique circumstances occurring on a case-by-case basis.

D. Hold harmless clauses, disclaimers, and limitations are not allowed within a Geotechnical Report.

E. Geotechnical Reports shall be in conformance with a format that is pre-approved by the Department. (Ord. 02-200 § 2).

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Chapter 14.120**NATURAL RESOURCE LANDS**

Sections:

- 14.120.010 Purpose.
- 14.120.020 Intent.
- 14.120.030 Applicability.
- 14.120.040 Mineral Resource Lands designation.
- 14.120.050 Natural Resource Lands noticing requirements.
- 14.120.060 Current use assessment.
- 14.120.070 Variances and appeals.
- 14.120.080 Review process.
- 14.120.090 Title, plat, and Regulated Activities notification.
- 14.120.100 Permitted uses.
- 14.120.110 Appendices.

14.120.010 Purpose.

This chapter establishes requirements and regulations to protect Natural Resource Lands and is established pursuant to WAC 197-11-908 and RCW 36.70A.170 and 36.70A.060. The City therefore designates Agricultural Lands and Mineral Resource Lands, and all associated Buffers as being Critical Areas and designated Natural Resource Lands. By regulating development within 500 feet of Natural Resource Lands, this title seeks to implement the following goals and policies to:

- A. Inform the public of the existence, location and potential incompatibility impacts of development on, or within 500 feet of, these Critical Areas within the city.
- B. Encourage the retention of open space, development of recreational opportunities, conserve priority habitat, increase access to Natural Resource Lands and water, and develop parks.
- C. Assure the conservation of resource lands and related activities by limiting encroachment of incompatible development thereon.
- D. Promote the conservation of Mineral Resource Lands through inclusion of known deposits of minerals and materials.
- E. Assure that undeveloped mineral and material resources will not be forever lost by prior development of the land for other purposes.
- F. Allow for the necessary mineral processing to convert such minerals and materials into marketable products.
- G. Protect the environment and enhance the state's high quality of life, including air and water quality and the availability of water.
- H. Maintain and enhance the biological and physical functions and values of Wetlands. (Ord. 02-200 § 2).

14.120.020 Intent.

Resource lands are of special concern to the citizens, the City, and the state. The intent of this chapter is to conserve resource lands by establishing standards for development of sites which contain, or are within 500 feet of, resource lands to promote the public health, safety, and welfare by:

- A. Noticing of property on, or within, natural resource land areas;
- B. Mitigating unavoidable impacts by regulating development;
- C. Protecting from development impacts;

D. Protecting the public against losses from:

1. Costs of public emergency rescue and relief operations where the causes are avoidable;
2. Degradation of the natural environment and the expense associated with repair or replacement;

E. Preventing adverse impacts on water availability, water quality, Wetlands, and streams;

F. Protecting unique, fragile, and valuable elements of the environment, including fish and wildlife habitat;

G. Providing sufficient information to show that Critical Areas are adequately protected prior to approving, conditioning, or denying public or private development activity;

H. Providing the public with sufficient information and notice of potential risks associated with development in any Critical Area or Sensitive Area;

I. Implementing the goals and requirements of the Growth Management Act (RCW 36.70A.060), the City's comprehensive plan, and all updates and amendments, functional plans, and other land use policies formally adopted or accepted by the City. (Ord. 02-200 § 2).

14.120.030 Applicability.

This chapter shall apply to all properties designated as resource lands, Agricultural Lands, Mineral Resource Lands, or properties within 500 feet of designated resource lands within Edgewood. When the requirements of this title are more stringent than those of other local, state, or federal law, codes, or regulations, the requirements of this title shall apply.

A. Agricultural Lands. Lands that are not already characterized by Urban Growth and that have long-term significance for the commercial production of food or other agricultural products. Agricultural Lands are those lands meeting all of the following criteria:

1. Lands in parcels which are 10 acres or larger in size;
2. Lands which are on prime or unique soils as identified in:
 - a. United States Department of Agriculture (USDA), Soil Conservation Service, February 1979, Soil Survey of Pierce County Area, Washington; or
 - b. USDA, Soil Conservation Service, June 1981, Important Farmlands of Pierce County, Washington;
 - c. Lands which are primarily devoted to the commercial production of horticultural, viticultural, floricultural, dairy, apiary, vegetable, or animal products or of berries, grain, hay, straw, turf, seed, Christmas trees not subject to the excise tax imposed by RCW 84.33.100 through 84.33.140, or livestock, and which have Long-Term Commercial Significance for agricultural production; and
 - d. Lands which are not within 500 feet of lots of record of one acre or less on more than 50 percent of the perimeter of the parcel.

B. Mineral Resource Lands. Mineral Resource Lands shall be identified by the City using the criteria set forth in WAC 365-190-070 as now exists or as may hereafter be amended or modified.

C. Property Adjacent to Resource Lands. All plats, short plats, development permits, and building permits issued for development activities within 500 feet of lands designated as Natural Resource Lands shall contain a notice that a variety of commercial activities may occur that are not compatible with residential development for certain periods of limited duration. (Ord. 04-221 § 1; Ord. 02-200 § 2).

14.120.040 Mineral Resource Lands designation.

A. The City has classified the following areas as potential Mineral Resource Lands.

1. Parcels: 0420164023, 0420164024, 0420164016 (commonly known as Olson); and
2. Parcels: 0420162047, 0420162048 (commonly known as Josties); and
3. Parcels: 0420084072, 0420084002, 0420084005, 0420084069, 0420084068, 0420171073, 0420171057, 0420171000, 0420171059 (commonly known as Fife Sand and Gravel).

B. The City staff shall study each area and prepare a written analysis of each area.

C. The City Council shall review the staff analysis and recommendation(s) and shall, by ordinance, approve, deny, or modify the particular study area designation using the criteria in EMC Section 14.120.060. (Ord. 04-234 § 1).

14.120.050 Natural Resource Lands noticing requirements.

Pursuant to RCW 36.70A.060, the City shall require that all plats, Development Applications, or permits issued for development activities on, abutting, or within 500 feet of lands designated as Natural Resource Lands contain a notice (see Appendices A through C).

A. General. If more than one natural resource land subject to the provisions of this title intersects the subject parcel, then one notice addressing all of the natural resource areas shall be sufficient.

B. Title Notification.

1. When the City determines that activities not exempt from this title are proposed, the owner shall file a notice with the Pierce County auditor in accordance with Appendices A through C of this Chapter. The notice shall provide a public record of the presence of any Sensitive Area; the application of this title to the property; and any limitations on activity in or affecting such Sensitive Area.

2. The notice shall be notarized and recorded with the Pierce County auditor before approval of any regulated use or activity on the site.

C. Plat Notification. For all proposals requiring a plat within any Sensitive Area, the applicant shall note the face of the plat consistent with the language set forth in Appendices A through C of this Chapter.

D. Permit Notification. The Department shall require that all permits issued for Regulated Activities on or within 500 feet of Natural Resource Lands contain a notice as set forth in Appendices A through C. (Ord. 02-200 § 2).

14.120.060 Current use assessment.

A. An owner of Natural Resource Lands or open space desiring current use Classification under Chapter 84.40 RCW may file for such current use Classification.

B. An owner of undeveloped land with Critical Areas which has been placed in a separate tract or tracts, protective easement, public or private land trust dedication, or other similarly preserved area for the protection of these Critical Areas may have that portion of land reviewed for reassessment by the assessor-treasurer's office consistent with those restrictions to determine the fair market value of the land pursuant to RCW 84.40.030.

C. The owner shall notify the assessor-treasurer's office when restrictions on development occur on a particular site, and shall provide a plat map in addition to the following, or other special study documents as may be required by the Department.

14.120.070 Variances and appeals.

Procedures for variances and appeals of an administrative decision issued pursuant to this chapter are set forth in EMC 18.40. (Ord. 02-200 § 2).

14.120.080 Review process.

A. The Department shall review any permit or Application requested for any regulated activity, including, but not limited to, those set forth in EMC Chapter 14.500 on a site which includes, or is within 500 feet of, one or more resource land is located, unless otherwise provided in this title.

B. As part of all development Applications, the Department shall review the information submitted by the applicant to:

1. Confirm the nature and type of the resource land and evaluate any required title, plat, and/or regulated activity notification;
2. Determine whether the development proposal is consistent with this title; and
3. Determine whether any proposed alterations to the site containing resource lands are necessary.

C. The City may approve, approve with conditions, or deny any development proposal in order to comply with the requirements and carry out the goals, purposes, objectives, and requirements of this title.

D. Approval of a development proposal does not discharge the obligation of the applicant to comply with the provisions of this title. (Ord. 02-200 § 2).

14.120.090 Title, plat, and Regulated Activities notification.

A. If more than one resource land subject to the provisions of this title exists on the site, then one notice addressing all of the resource lands shall be sufficient.

B. Notification shall be approved by the Department and shall be consistent with the forms set forth in EMC 14.120.110, Appendices A through C, as applicable.

C. Title notifications shall be notarized and recorded with the Pierce County auditor prior to approval of any regulated use or activity for the site. (Ord. 02-200 § 2).

14.120.100 Permitted uses.

Uses permitted on designated resource land sites shall be the same as those permitted in the zone Classifications shown on the City zoning map. (Ord. 02-200 § 2).

14.120.110 Appendices.

A. Property Adjacent to Resource Lands.

B. Agriculture Lands Noticing.

C. Mineral Resource Lands Noticing.

APPENDIX A

PROPERTY ADJACENT TO RESOURCE LANDS

A. Title Notification.

Parcel Number: _____

Site Address: _____

NOTICE: This parcel lies within 500 feet of land designated resource lands by Edgewood. A variety of commercial and industrial activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of chemicals, or from spraying or extraction which occasionally generates dust, smoke, noise, and odor. The City has established resource uses as priority uses on productive resource lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary commercial resource lands operations.

Signature of Owner

(NOTARY ACKNOWLEDGMENT)

B. Plat Notification. The owner of any site within 500 feet of land designated as resource lands on which a large lot, short subdivision, or formal subdivision is submitted, shall record a notice on the face of the plat. Such notification shall be in the form as set forth below:

PROPERTY ADJACENT TO RESOURCE LANDS PLAT NOTIFICATION. This property lies within 500 feet of land designated resource lands by Edgewood. A variety of commercial and industrial activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of chemicals, or from spraying or extraction which occasionally generates dust, smoke, noise, and odor. The City has established resource uses as priority uses on productive resource lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary commercial resource lands operations.

C. Regulated Activities Notification. The Department shall require that permits issued for regulated activities, as defined in EMC Chapter 14.120, within 500 feet of lands designated as resource lands, contain a notice as set forth below.

REGULATED ACTIVITIES NOTIFICATION. This property lies within 500 feet of land designated resource lands by Edgewood. A variety of commercial and industrial activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of chemicals, or from spraying or extraction which occasionally generates dust, smoke, noise, and odor. The City has established resource uses as priority uses on productive resource lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary commercial resource lands operations.

APPENDIX BAGRICULTURAL LANDS NOTICINGA. Title Notification.

Parcel Number: _____

Site Address: _____

NOTICE: This parcel lies within 500 feet of an area identified as Agricultural Lands by Edgewood. A variety of commercial Agricultural Activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of agricultural chemicals, including herbicides, pesticides, and fertilizers; or from spraying, pruning, and harvesting which occasionally generate dust, smoke, noise, and odor. Edgewood has established agriculture as a priority use on productive Agricultural Lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary farm operations.

Signature of Owner

Signature of Owner

(NOTARY ACKNOWLEDGMENT)

B. Plat Notification. The owner of any site within this designation on which a large lot, short subdivision, or formal subdivision is submitted, shall record a notice on the face of the plat. Such notification shall be in the form as set forth below.

AGRICULTURAL LANDS PLAT NOTIFICATION. This parcel lies within an area identified as Agricultural Lands by Edgewood. A variety of commercial Agricultural Activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of agricultural chemicals, including herbicides, pesticides, and fertilizers; or from spraying, pruning, and harvesting which occasionally generate dust, smoke, noise, and odor. The City has established agriculture as a priority use on productive Agricultural Lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary farm operations.

C. Regulated Activities Notification. The Department shall require that all permits issued for regulated activities, as defined in EMC Chapter 14.120, within this zone Classification contain a notice as set forth below.

REGULATED ACTIVITIES NOTIFICATION. This parcel lies within 500 feet of an area identified as Agricultural Lands by Edgewood. A variety of commercial Agricultural Activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of agricultural chemicals, including herbicides, pesticides, and fertilizers; or from spraying, pruning, and harvesting which occasionally generate dust, smoke, noise, and odor. The City has established agriculture as a priority use on productive Agricultural Lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary farm operations.

APPENDIX C

MINERAL RESOURCE LANDS NOTICING

A. Title Notification.

Parcel Number: _____

Site Address: _____

NOTICE: This parcel lies within 500 feet of an area of land designated mineral resource lands by the City. A variety of commercial mineral extraction activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of heavy equipment, chemicals, and spraying which may generate dust, smoke, and noise associated with the extraction of mineral resources. Edgewood has established mineral resource extraction as a priority use on productive mineral resource lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary mineral resource extraction operations.

Signature of Owner

(NOTARY ACKNOWLEDGMENT)

B. Plat Notification. The owner of any site within this overlay district on which a large lot, short subdivision, or formal subdivision is submitted, shall record a notice on the face of the plat. Such notification shall be in the form as set forth below:

MINERAL RESOURCE LANDS PLAT NOTIFICATION. This property lies within 500 feet of an area of land designated mineral resource lands by the City of Edgewood. A variety of

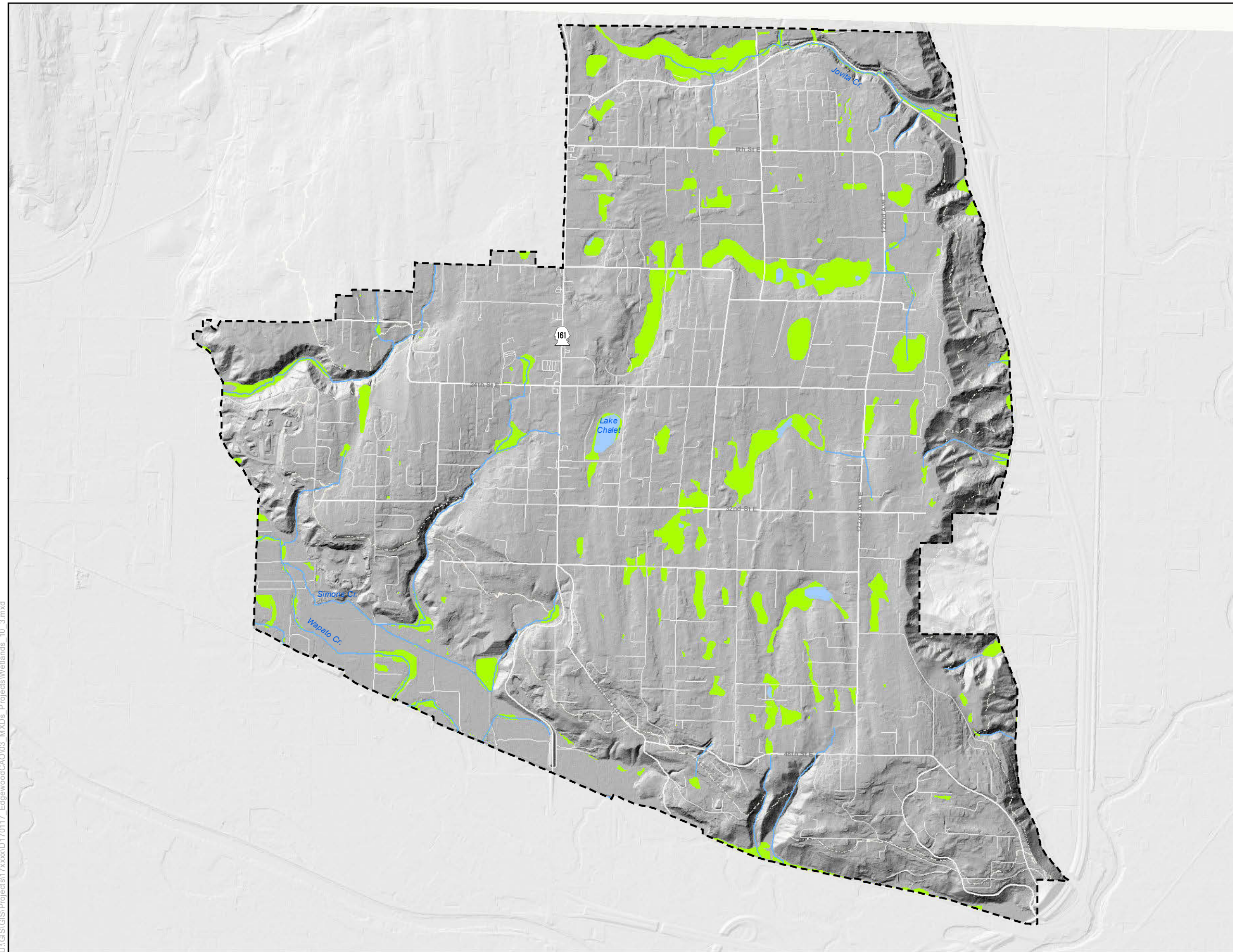
mineral resource extraction activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of heavy equipment, chemicals, and spraying which may generate dust, smoke, and noise associated with the extraction of mineral resources. Edgewood has established mineral resource extraction as a priority use on productive mineral resource lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary mineral resource extraction lands.

C. Regulated Activities Notification. The Department shall require that all permits issued for regulated activities, as defined in EMC Chapter 14.120, within this designation contain a notice as set forth below:

REGULATED ACTIVITIES NOTIFICATION. This property lies within 500 feet of an area of land designated mineral resource lands by Edgewood. A variety of mineral resource extraction activities occur in the area that may be inconvenient or cause discomfort to area residents. This may arise from the use of chemicals and extraction of minerals, which occasionally generates dust, smoke, noise, and odor. The City has established mineral resource extraction as a priority use on productive mineral resource lands, and residents of adjacent property should be prepared to accept such inconveniences or discomfort from normal, necessary mineral resource extraction lands.

(Ord. 02-200 § 2).

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City of
Edgewood

ENVIRONMENTALLY CRITICAL AREAS INVENTORY

Wetlands

- City Boundary
- Waterbodies
- Streams/Drainage Courses
- Potential Wetlands

0 0.5
Miles

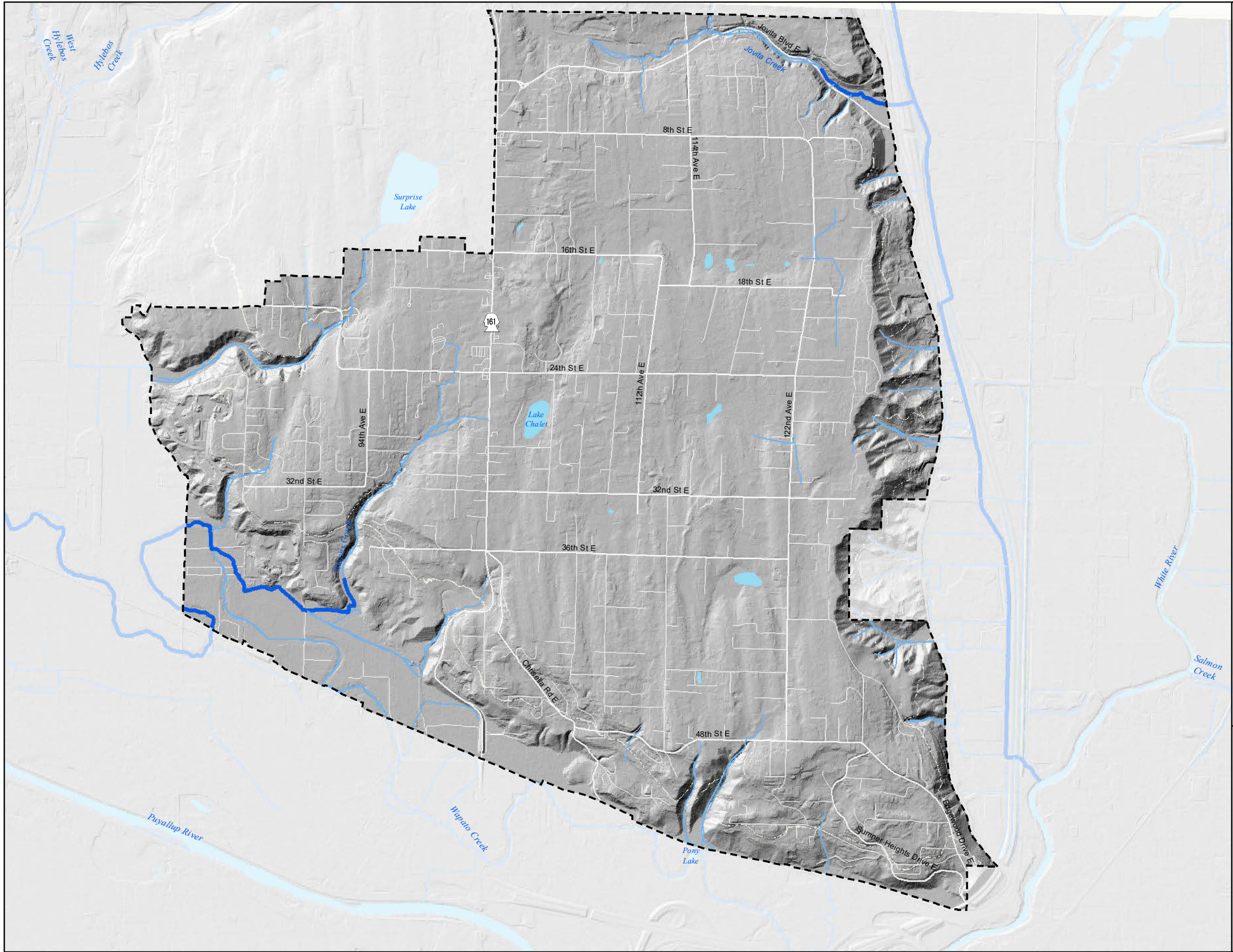


SOURCE: City of Edgewood, 2005 & 2017; Pierce County, 2010 & 2016

This figure is intended for planning purposes only. Environmentally critical areas layers depicted in this figure are based on available City of Edgewood, Pierce County, and Washington State inventory information, and do not represent surveyed boundaries. The City makes no representation or warranty as to this product's accuracy or location of any mapped features. For more information, contact the City of Edgewood.



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City of
Edgewood

ENVIRONMENTALLY CRITICAL AREAS INVENTORY

Streams

- City Boundary
- Waterbodies
- Untyped Stream/Drainage Course*
- Type F Stream (Fish Bearing)

* Untyped streams, as shown in this map, may be fish bearing. Assessment by WDFW and/or a qualified fisheries biologist may be required to determine fish presence or absence.

0 0.5
Miles



SOURCE: City of Edgewood, 2017; Pierce County, 2017; WDFW, 2017; Puget Sound LiDAR Consortium, 2008

This figure is intended for planning purposes only. Environmentally critical areas layers depicted in this figure are based on available City of Edgewood, Pierce County, and Washington State inventory information, and do not represent surveyed boundaries. The City makes no representation or warranty as to this product's accuracy or location of any mapped features. For more information, contact the City of Edgewood.





City of
Edgewood

ENVIRONMENTALLY CRITICAL AREAS INVENTORY

Frequently Flooded Areas

- City Boundary
- Waterbody
- City Identified Flood Hazard Areas
- FEMA Floodway
- City-Identified Floodway
- FEMA 100-Year Floodplain
- City-Identified 100-year Floodplain

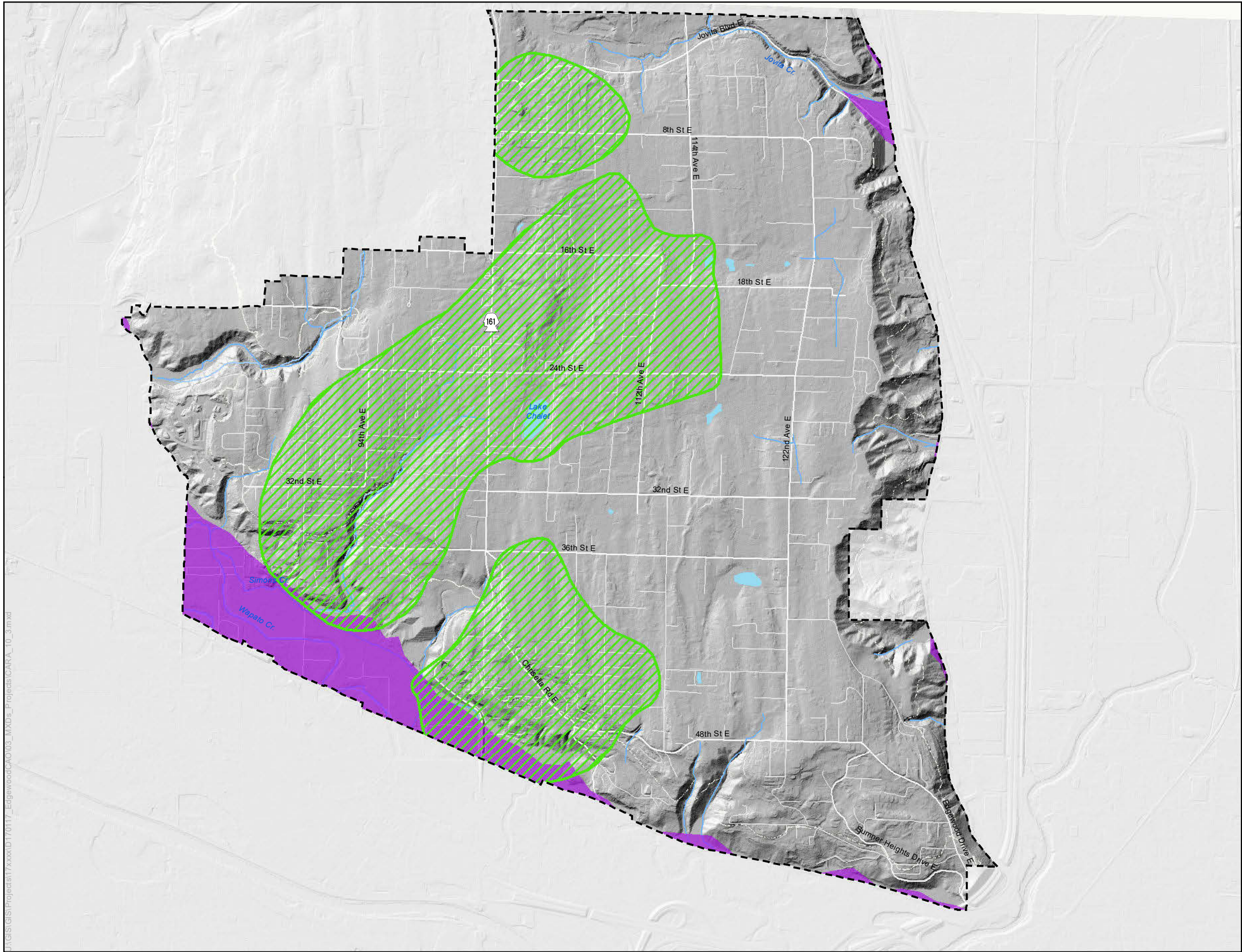
0 0.5
Miles



SOURCE: City of Edgewood, 2005 & 2017; FEMA, 1987;
Puget Sound LiDAR Consortium, 2008

This figure is intended for planning purposes only.
Environmentally critical areas layers depicted in this
figure are based on available City of Edgewood,
Pierce County, and Washington State inventory
information, and do not represent surveyed boundaries.
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City of
Edgewood

**ENVIRONMENTALLY
CRITICAL AREAS INVENTORY**

**Critical Aquifer
Recharge Areas**

-  City Boundary
-  Waterbodies
-  Streams/Drainage Courses
-  Vulnerable Aquifer Recharge Areas
-  Wellhead Protection Areas

0 0.5
Miles



SOURCE: City of Edgewood, 2017; Pierce County, 2015 & 2017; Puget Sound LiDAR Consortium, 2008; Robinson Noble, 2005

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City of
Edgewood

ENVIRONMENTALLY CRITICAL AREAS INVENTORY

Geologically Hazardous Areas

-  City Boundary
-  Steep Slope Indicator
-  Landslide Hazard Indicator
-  Liquefaction and Dynamic Settlement Hazard Areas
-  Volcanic Hazard

0 0.5
Miles



SOURCE: Pierce County, 2005 & 2012; WDNr, 2004;
Puget Sound LiDAR Consortium, 2008

This figure is intended for planning purposes only. Environmentally critical areas layers depicted in this figure are based on available City of Edgewood, Pierce County, and Washington State inventory information, and do not represent surveyed boundaries. The City makes no representation or warranty as to this product's accuracy or location of any mapped features. For more information, contact the City of Edgewood.



ORDINANCE NO. 17-0513

AN ORDINANCE OF THE CITY OF EDGEWOOD, WASHINGTON, RELATING TO COMPLIANCE WITH THE GROWTH MANAGEMENT ACT (GMA), CHAPTER 36.70A RCW, INCORPORATING THE CITY'S MANDATORY UPDATE OF ITS CRITICAL AREAS REGULATIONS, AS REQUIRED BY RCW 36.70A.130(7)(B); REPEALING TITLE 14 – CRITICAL AREAS OF THE EDGEWOOD MUNICIPAL CODE (EMC) AND REPLACING IT WITH A NEW TITLE 14; REPEALING EMC CHAPTER 15.10, PROVIDING FOR SEVERABILITY; AND ESTABLISHING AN EFFECTIVE DATE.

WHEREAS, the Washington Growth Management Act (GMA) requires the adoption of development regulations that designate and protect Critical Areas in accordance with RCW 36.70A.60 and RCW 37.70A.170; and

WHEREAS, as defined by the GMA in RCW 36.70A.030(5): "Critical areas" include the following areas and ecosystems: (a) Wetlands; (b) areas with a critical recharging effect on aquifers used for potable water; (c) fish and wildlife habitat conservation areas; (d) frequently flooded areas; and (e) geologically hazardous areas; and

WHEREAS, the City of Edgewood is required to review its Critical Area regulations periodically and revise them if needed to comply with the requirements of RCW 36.70A; and

WHEREAS, cities are required to include the best available science in developing policies and development regulations to protect the functions and values of critical areas; and

WHEREAS, The Department of Commerce, Growth Management Services, and the state Department of Ecology have provided helpful guidance on addressing the GMA's best available science requirements; and

WHEREAS, the language contained in EMC Chapter 15.10 – Flood Damage Prevention has been incorporated into the new Title 14 under Chapter 14.80; and

WHEREAS, the City's SEPA Responsible Official determined that this Ordinance does not have a probable significant adverse impact on the environment and issued a Determination of Nonsignificance (DNS) pursuant to WAC 197-11-340(1) on September 8, 2017; and

WHEREAS, on March 30, 2018, the City sent a copy of this ordinance to the Washington State Department of Commerce, as required by RCW 36.70A.106(1); and

WHEREAS, the Planning Commission held a Public Hearing to receive public testimony regarding the Proposed Code Amendment at their April 16, 2018 meeting; and

WHEREAS, after the public hearing, the Planning Commission submitted a formal recommendation the City Council; and

WHEREAS, the City Council considered this ordinance and the Planning Commission's recommendation during its regular City Council meeting of May 8, 2018; and

**NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF EDGEWOOD,
WASHINGTON, DO ORDAIN AS FOLLOWS:**

- Section 1.** Repealers. The current EMC Title 14 – Critical Areas is hereby repealed in its entirety.
- Section 2.** Repealers. The current EMC Chapter 15.10 – Flood Damage Prevention is hereby repealed in its entirety.
- Section 3.** Code Replacement. The new EMC Title 14 – Critical Areas, attached as Exhibit A, is hereby adopted by the City Council of the City of Edgewood and shall be codified as such.
- Section 4.** Severability. Should any section, paragraph, sentence, clause or phrase of this ordinance, or its application to any person or circumstance be declared unconstitutional or otherwise invalid for any reason, or should any portion of this ordinance be preempted by state or federal law or regulation, such decision or preemption shall not affect the validity of the remaining portions of this ordinance or its application to other persons or circumstances.
- Section 5.** Effective Date and Publication. This ordinance shall take effect and be in full force five (5) days after publication, as provided by law.

ADOPTED BY THE CITY COUNCIL ON THE __TH DAY OF _____, 2018.

Daryl Eidinger, Mayor

ATTEST/AUTHENTICATED:

Rachel Pitzel, City Clerk

APPROVED AS TO LEGAL FORM:

Carol Morris, CITY ATTORNEY

DATE OF PUBLICATION:
EFFECTIVE DATE:



**CITY OF EDGEWOOD
REGULAR COUNCIL MEETING SUMMARY**

Tues., April 24, 2018 – 7:00 p.m. ♦ City Hall – 2224 104th Avenue East ♦ Edgewood, WA

1. CALL TO ORDER

Mayor Eidinger called the meeting to order at 7:00pm. Councilmember Meyers led the attendees in the Pledge of Allegiance.

ROLL CALL

Present: Mayor Daryl Eidinger, Councilmember John C. West, Councilmember Mark Creley, Councilmember Luke Meyers, Deputy Mayor Tyron Christopherson, Councilmember Roseanne Tomy, Councilmember Nate Lowry. **Absent:** Councilmember Stephanie Hunter.

Staff Present: Assistant City Administrator Dave Gray, City Clerk Rachel Pitzel, Community Development Director Darren Groth, Public Works Director Jeremy Metzler, Police Chief Micah Lundborg, Carol Morris, City Attorney.

Additions/Deletions to the Agenda

There were no additions or deletions to the agenda.

2. PUBLIC HEARINGS

- 1. AB18-015** - Ordinance No. 18-0522, relating to Subdivisions, adding procedures for Alterations and Vacations of approved Subdivisions and approved Binding Site Plans, describing the elements of a complete application, criteria for approval, effect of approval and requirements for recording, pursuant to RCW 58.17.212 and 58.17.215, adding a new Chapter 16.07 to the Edgewood Municipal Code (EMC); providing for severability; and establishing an effective date

Mayor Eidinger read the rules for the hearing.

Mayor Eidinger opened the public hearing at 7:03pm.

Community Development Director Darren Groth briefed folks on Ordinance No. 18-0522.

Mayor Eidinger asked for public comments.

There were no comments made at the hearing.

There were no additional staff comments.

Mayor Eidinger closed the public hearing at 7:05pm.

2. AB18-016 - 2018 Comprehensive Plan Docket

Mayor Eidinger opened the public hearing at 7:06pm.

Community Development Director Darren Groth updated folks on the 2018 Comprehensive Plan Docket.

Mayor Eidinger asked for public comments.

Gary Todd – discussed being glad to see this Comprehensive Plan Update this far and hopes it continues.

Minoru “Buddy” Uchida – discussed the desire to move to industrial/commercial zoning and believes it to be beneficial to the community; he noted he looks forward to working with the city.

Chris Ferko - discussed being consultant on the Uchida Farms and noted this being a good opportunity to discuss the proposal and went through a list of things that could be studied. Look forward to working with staff to bring a proposal that works toward the objectives he noted.

Comments received via email from Ms. Cathy V. Canorro, forwarded to the Council, Mayor, provided at the meeting, and attached hereto as Attachment A.

There were no additional staff comments.
Mayor Eiding closed the public hearing at 7:21pm.

3. PRESENTATION

Part IV – Welcome to your Pierce County Contract! Now, what do you get?
Chief Lundborg introduced the Property Room representatives, Cindy McBride and Centura Grey. Chief Lundborg passed around handouts to Council that showed what the property room representatives do and how they do it.

4. AUDIENCE COMMENT

There were no audience comments.

5. MAYOR'S REPORT

Mayor Eiding spoke about the following:

- The City completed the annual Spring Clean-up week; we continue to have litter issues, more specifically illegal dumping in many places of our city. We will be looking into solutions that we can use to stop violators from defacing our city.
- The GIS system looks to be online this week; SmartGov training in May and expect to have electronic applications available to the public by mid-summer. Thanks to Darren Groth and his team for all their efforts to make this step a reality.
- Dave Gray and the Mayor attended the AWC Small Cities meeting in Eatonville last week to meet with other mayors and staff to talk about funding programs and other common topics.
- Staff is currently interviewing for the Building Official vacancy, and expect to fill that position in the near future.
- Pierce County Regional Council (PCRC) had a lively discussion about transit set-asides since a portion of our dollars have gone to transportation agencies in the county. The group decided to leave the allocation as it is and then review all of the different set-asides in detail before the next funding cycle.

Community Development Director Groth briefed on the following:

- Discussed the SmartGov, GIS programming, and improvements, and thanked Council for approving this and making it happen. He noted the amazing changes of what the city is doing now, and how it will streamline the process.

Chief Lundborg briefed on the following:

- Taste of Hedden, and noted it was a fun event;
- Finished up the Community Academy;
- Crime incidents.

6. CONSENT AGENDA

The consent agenda includes items that are routine in nature and are adopted by one motion. Should Council wish to discuss a consent agenda item, the item would be removed from the consent agenda and discussed under Council Business.

The following items are presented for Council approval:

- A. Regular City Council Meeting Minutes of April 10, 2018,
- B. Study Session Meeting Minutes of April 17, 2018.
- C. **AB 18-017**, a motion approving April 2018 Budgeted Expenditures as follows: Deferred Compensations Program; Payroll Direct Deposit; Dept. of Retirement Systems; IRS 941 ACHs; Employment Security Dept.; and Dept. of Labor and Industry in the amount of \$56,041.28; and Vendor Check Numbers 23236 through 23258 with EFT Payments in the amount of \$221,219.19. Total distributions submitted for review & authorization in the amount of \$277,260.47.

Motion: As Read, **Action:** Approve, **Moved by** Deputy Mayor Tyron Christopherson, **Seconded by** Councilmember Roseanne Tomy. **Motion passed unanimously (6-0).**

7. COUNCIL BUSINESS

- A. **AB18-018**, a motion confirming the Mayoral re-appointments of Jan Furey, Position No. 4 and Bob Woloshyn, Position No. 5 for a second term to the City of Edgewood Salary Community Development Director Groth briefed on the agenda item.

Motion: As Read, **Action:** Approve, **Moved by** Councilmember Nate Lowry, **Seconded by** Councilmember John C. West. **Motion passed unanimously (6-0).**

8. COUNCIL COMMENTS

Mayor Eidinger noted the Shred Event at the Bank of America parking lot in Milton, 10am - 1pm; Parks Appreciation Day, Nelson Nature Park, April 28th 10am -1pm.

Councilmember Meyers would like an update on the CenturyLink Franchise Agreement.

9. EXECUTIVE SESSION

Mayor Eidinger noted there was an executive session.

City Clerk Pitzel stated there would be an Executive Session pursuant to RCW 42.30.110(1)(i)(i) potential litigation and City Attorney Morris would be attending via telephonically.

The Executive Session will last approximately 10 minutes.

Mayor Eidinger recessed the meeting to Executive Session at 7:59pm for 10 minutes.

Mayor Eidinger called the meeting back to order at 8:08pm.

10. ADJOURN

Mayor Eidinger adjourned the meeting at 8:08 pm.

Rachel Pitzel, City Clerk

Daryl Eidinger, Mayor



**CITY OF EDGEWOOD
COUNCIL STUDY SESSION SUMMARY**

Tues., May 1, 2018 – 7:00 PM ♦ City Hall – 2224 104th Avenue East ♦ Edgewood, WA

1. CALL TO ORDER

Mayor Eidinger called the meeting to order at 7:00pm and led attendees in the Pledge of Allegiance.

ROLL CALL

Present: Mayor Daryl Eidinger, Councilmember John C. West, Councilmember Mark Creley, Councilmember Luke Meyers, Deputy Mayor Tyron Christopherson, Councilmember Stephanie Hunter.

Excused: Councilmember Roseanne Tomyn, Councilmember Nate Lowry

Staff Present: Assistant City Administrator Dave Gray, City Clerk Rachel Pitzel, Community Development Director Darren Groth, Jeremy Metzler Public Works Director, Police Chief Micah Lundborg.

2. COUNCIL BUSINESS

A. Presentation / Discussion – FCS Group – SW Rate Changes 2019

Mr. John Ghilarducci and Mr. Tage Aaker representatives from FCS Group - presented Council with a PowerPoint presentation.

- Overview of Surface Water Management Fund
- Key Policy Issues
 - Rate revenue insufficient to cover operating expenditures
 - Capital Improvement Plan (CIP)
 - Funding Options
- Revenue Requirement
 - Scenario 1: Complete CIP (cash and debt funded)
 - Scenario 2: Critical Projects CIP (cash funded)
 - Scenario 3: Critical Projects CIP (cash and debt funded)
 - Rate Comparison
- Summary and Next Steps

Discussion followed between staff and the Council.

B. and C. Review / Discussion – View Pointe and Northwood Estates Segregation Applications

Assistant City Administrator Dave Gray briefed Council on these items and introduced Mr. Garrett Gibson from Lennar Homes.

Discussion followed between staff and the Council.

Council noted they would like from the following from Lennar:

- Copy of verbiage in the master disclosure document
- Title report on one of the “first” original sale
- What type of document or information do you provide purchasers on the LID
- Lennar will check their records on being told it could be segregated at the time of purchase of land

D. Review / Discussion – Council Highlight Review

Discussion took place regarding small edits to the article.

E. Discussion – Ordinance – Plat Alteration

Community Development Director Darren Groth briefed Council on this agenda item. Mr. Groth noted no changes have been made since the public hearing and council will see this item on the agenda next week for action.

F. Discussion – Ordinance – 2018 Comp Plan Docket

Community Development Director Darren Groth briefed Council on this agenda item. Mr. Groth noted no changes have been made since the public hearing and council will see this item on the agenda next week for action.

G. Discussion – Ordinance No. 17-0513 – Critical Areas

Community Development Director Darren Groth briefed Council on this agenda item and commented this will be on the agenda next week as a public hearing. Mr. Groth stated that with this ordinance there is a policy decision that is needed on how the city applies the Critical Areas Ordinance. Discussion followed between staff and the Council.

H. Discussion – Resolution – 4-Way Stop

Public Works Director Jeremy Metzler briefed Council on this agenda item. Discussion followed between staff and the Council.

Council action: Council recommended staff to bring forward to the next regular council meeting in three different resolutions for action.

I. Discussion – Big Brothers/Big Sisters Donation Bin

No discussion, representatives did not show up.

J. Review / Discussion – 1st Quarter Financials

Assistant City Administrator Dave Gray briefed Council on this agenda item.

Assistant City Administrator Dave Gray also noted he has a purchase order for the sound system to place on the consent agenda for next week.

Mayor Eidinger noted per Council Rules and Procedure if the study session runs past 9pm, to continue past this time – a majority of the council must concur. Mayor Eidinger asked for a motion to extend the study session.

Motion: Extend study session, **Action:** Approve, **Moved by** Councilmember Stephanie Hunter, **Seconded by** Councilmember John C. West. **Motion passed unanimously (5-0).**

3. OTHER COUNCIL ISSUES

Public Works Director Metzler discussed the parallel road network. Council direction was to move forward to Planning Commission for review.

Mayor Eidinger noted in process of seeking out a Building Inspector, staff had narrowed down to two highly qualified individuals. He commented the second person would be a beneficial addition to the city as this person has commercial experience as well as code enforcement.

Mayor Eidinger noted the Fire Department is still interested in renting the downstairs space, he discussed Council will be seeing a contract next week for a lease of 3-5 years.

4. ADJOURN

Mayor Eidinger adjourned the meeting at 9:16pm.

Rachel Pitzel, City Clerk

Daryl Eidinger, Mayor



**CITY OF EDGEWOOD
REQUEST FOR COUNCIL ACTION
Agenda Bill No.: 18-020**

Date Action Requested: May 8, 2018

Title: AB18-020, a motion approving May 2018 Budgeted Expenditures as follows: Deferred Compensations Program; Payroll Direct Deposit; Dept. of Retirement Systems; IRS 941 ACHs; and AWC Employee Benefit Trust in the amount of \$75,231.79; and Vendor Check Numbers 23259 through 23277 with EFT Payments in the amount of \$51,592.32. Total distributions submitted for review & authorization in the amount of \$126,824.11.

Attachments: Payment Distribution Review & Authorization, Voucher Directory

Submitted By: Stephanie Goff, Accounting Manager

Approved For Agenda By: Mayor Daryl Eidinger

Prepared For Agenda By: Rachel Pitzel, City Clerk

Recommendation: Move to Approve AB18-020

Discussion: Approval of Claims and Payroll Expenditures

Alternatives: 1) Do not approve. 2) Refer to Council Study Session for Further Review.

Fiscal Impact: An increase in the sum of \$126,824.11 to authorized Budgeted Expenditures.

City of Edgewood 2018

May 8th 2018 Council Meeting Check & EFT Payment Distribution Review & Authorization

Number	Name	Print Date	Amount
US Bank PAYROLL ACCOUNT DISTRIBUTION			
10607 Last Number Issued Previous Authorization			
<u>AWC EFT 4/30/18</u>	AWC Employee Benefit Trust	4/30/2018	\$24,268.73
<u>DCP EFT 4/30/18</u>	Deferred Compensation Program	4/30/2018	\$5,801.40
<u>Direct Deposit Run -</u>	Payroll Vendor	4/30/2018	\$33,069.99
<u>DRS EFT 4/30/18</u>	Dept of Retirement Systems	4/30/2018	\$7,546.71
<u>IRS 941 EFT 4/30/18</u>	IRS 941	4/30/2018	\$4,544.96
Total			\$75,231.79

Number	Name	Print Date	Amount
CLAIM VOUCHER ACCOUNT DISTRIBUTION			
23258 Last Number Issued Previous Authorization			
<u>23259</u>	Carrera Holdings	5/8/2018	\$78.00
<u>23260</u>	Century Link	5/8/2018	\$220.12
<u>23261</u>	Cintas Corporation	5/8/2018	\$225.95
<u>23262</u>	City of Sumner	5/8/2018	\$2,908.92
<u>23263</u>	Darel Roa	5/8/2018	\$1,335.29
<u>23264</u>	Drain-Pro	5/8/2018	\$413.84
<u>23265</u>	Elan City, Inc.	5/8/2018	\$240.00
<u>23266</u>	Foster Pepper PLLC	5/8/2018	\$5,573.50
<u>23267</u>	Gary Shilley	5/8/2018	\$150.00
<u>23268</u>	Herrera Environmental Consultants, Inc.	5/8/2018	\$10,643.33
<u>23269</u>	Landau Associates	5/8/2018	\$2,597.82
<u>23270</u>	Office Depot	5/8/2018	\$357.18
<u>23271</u>	Pierce County Budget & Finance	5/8/2018	\$45.00
<u>23272</u>	Pierce County Budget & Finance Jail	5/8/2018	\$7,235.10
<u>23273</u>	ABACO Contractors LLC	5/8/2018	\$1,627.50
<u>23274</u>	Curbow, Jamie M	5/8/2018	\$164.59
<u>23275</u>	Gray, David D	5/8/2018	\$22.85
<u>23276</u>	Wilbur-Ellis Company	5/8/2018	\$55.14
<u>23277</u>	Morris Law PC	5/8/2018	\$16,244.70
<u>EFT Payment 5/3/2018</u>	Comcast	5/8/2018	\$101.33
<u>EFT Payment 5/3/2018</u>	Mt. View-Edgewood Water Co.	5/8/2018	\$290.05
<u>EFT Payment 5/3/2018</u>	Verizon Wireless	5/8/2018	\$511.07
<u>EFT Payment 5/3/2018</u>	Wells Fargo Vendor Fin Serv	5/8/2018	\$551.04

Total Claims Voucher Distribution	\$51,592.32
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Total Distribution Submitted for Review & Authorization	\$126,824.11
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Authorization Adjustments:	\$ -
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Total Distribution Net of Prior Authorized Adjustments	\$126,824.11
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Claims Voucher Approval: I, the undersigned, do hereby certify under penalty of perjury that the materials have been furnished, the services rendered or the labor performed

_____ Mayor, Daryl Eiding

_____ Council Member



Voucher Directory

Fiscal: : 2018 - May
Council Date: : All

Vendor	Number	Reference	Account Number	Description	Amount
Carrera Holdings	23259			2018 - May - 1st Council Meeting	
		050818-CAR			
			Reimburse Recording Fees-BLA		
			001-058-000-558-60-51-01	Pierce County Recording Fees	\$78.00
				Record Boundary Line Adj	
		Total 050818-CAR			\$78.00
	Total 23259				\$78.00
Total Carrera Holdings					\$78.00
Century Link	23260			2018 - May - 1st Council Meeting	
		253-927-2018 680B 4/25-5/25/18			
			4/25-5/25/18 Services		
			001-018-000-518-30-42-01	Telecommunications Charges	\$110.63
				Elevator Alarm Line	
		Total 253-927-2018 680B 4/25-5/25/18			\$110.63
		253-952-3537 889B 4/22-5/22/18			
			4/22-5/22/18 Services		
			001-018-000-518-30-42-01	Telecommunications Charges	\$109.49
				Fax and Fire Alarm Line	
		Total 253-952-3537 889B 4/22-5/22/18			\$109.49
	Total 23260				\$220.12
Total Century Link					\$220.12
Cintas Corporation	23261			2018 - May - 1st Council Meeting	
		4004853191			
			4/2/18 Weekly Service		
			001-018-000-518-30-41-01	Professional Services	\$45.19
		Total 4004853191			\$45.19
		4005013565			
			4/9/18 Weekly Service		
			001-018-000-518-30-41-01	Professional Services	\$45.19
		Total 4005013565			\$45.19

Vendor	Number	Reference	Account Number	Description	Amount
		4005187211			
			4/16/18 Weekly Service		
			001-018-000-518-30-41-01	Professional Services	\$45.19
		Total 4005187211			\$45.19
		4005357990			
			4/23/18 Weekly Service		
			001-018-000-518-30-41-01	Professional Services	\$45.19
		Total 4005357990			\$45.19
		4005526644			
			4/30/18 Weekly Service		
			001-018-000-518-30-41-01	Professional Services	\$45.19
		Total 4005526644			\$45.19
	Total 23261				\$225.95
Total Cintas Corporation					\$225.95
City of Sumner					
	23262		2018 - May - 1st Council Meeting		
		03745			
			May Metro Animal Services		
			001-018-000-554-30-51-01	Animal Control Services	\$2,908.92
				Animal Control Svs. for May	
		Total 03745			\$2,908.92
	Total 23262				\$2,908.92
Total City of Sumner					\$2,908.92
Comcast					
		EFT Payment 5/3/2018 10:44:04 AM - 1	2018 - May - 1st Council Meeting		
		8498 35 021 0458551 4/25-5/24/18			
			4/25-5/24/18 Services		
			001-018-000-518-30-42-01	Telecommunications Charges	\$101.33
				City Hall Internet	
		Total 8498 35 021 0458551 4/25-5/24/18			\$101.33
		Total EFT Payment 5/3/2018 10:44:04 AM - 1			\$101.33
Total Comcast					\$101.33
Darel Roa					
	23263		2018 - May - 1st Council Meeting		
		20180021			
			April Services		
			001-018-000-518-20-41-01	Professional Service	\$1,335.29
				City Council Photography	
		Total 20180021			\$1,335.29
	Total 23263				\$1,335.29
Total Darel Roa					\$1,335.29

Vendor	Number	Reference	Account Number	Description	Amount
Drain-Pro	23264			2018 - May - 1st Council Meeting	
		43024			
			4/22-5/19/18 Service		
			001-076-000-576-80-45-03	Operating Rentals	\$145.00
				Edgemont Park	
		Total 43024			\$145.00
		43025			
			4/22-5/19/18 Service		
			001-076-000-576-80-45-03	Operating Rentals	\$145.00
				Nature Park	
		Total 43025			\$145.00
		43530			
			4/25-5/19/18 Service		
			001-076-000-576-80-45-03	Operating Rentals	\$123.84
				Nelson Farm	
		Total 43530			\$123.84
	Total 23264				\$413.84
Total Drain-Pro					\$413.84
Elan City, Inc.	23265			2018 - May - 1st Council Meeting	
		2000-630			
			Mounting Bars		
			101-000-000-542-64-31-11	Traffic Control Devices-Signs	\$240.00
				Mounting Bars	
		Total 2000-630			\$240.00
	Total 23265				\$240.00
Total Elan City, Inc.					\$240.00
Foster Pepper PLLC	23266			2018 - May - 1st Council Meeting	
		1197547			
			March Svcs-Matter No. 7		
			001-015-000-515-41-41-01	Legal Services-External	\$5,573.50
				Rogers Buchanan LID Foreclosure	
		Total 1197547			\$5,573.50
	Total 23266				\$5,573.50
Total Foster Pepper PLLC					\$5,573.50
Gary Shilley	23267			2018 - May - 1st Council Meeting	
		042418-GS			
			Firearms Simulator-Comm Academy		
			001-021-000-521-30-41-01	Crime Prevention-Professional Services	\$150.00

Vendor	Number	Reference	Account Number	Description	Amount
				Firearms Simulator-Community Academy	
		Total 042418-GS			\$150.00
	Total 23267				\$150.00
Total Gary Shilley					\$150.00
Herrera Environmental Consultants, Inc.	23268			2018 - May - 1st Council Meeting	
		42166			
			March Svcs-Prj 17-06504-000		
			410-000-000-531-38-41-02	Prof. Service-Plan Update	\$10,643.33
		Total 42166			\$10,643.33
	Total 23268				\$10,643.33
Total Herrera Environmental Consultants, Inc.					\$10,643.33
Landau Associates	23269			2018 - May - 1st Council Meeting	
		0041161			
			March Svcs-Prj 0495100.010		
			001-058-000-558-60-41-01	Reim.Engineering - Prof. Serv	\$1,249.16
				Kelley Residence 18-1069	
		Total 0041161			\$1,249.16
		0041162			
			March Svcs-Prj 0495101.010		
			001-058-000-558-60-41-01	Reim.Engineering - Prof. Serv	\$1,348.66
				North Edgewood Apts-18-1049	
		Total 0041162			\$1,348.66
	Total 23269				\$2,597.82
Total Landau Associates					\$2,597.82
Morris Law PC	23277			2018 - May - 1st Council Meeting	
		050218-MOR			
			April Services		
			001-015-000-515-41-41-01	Legal Services-External	\$16,244.70
		Total 050218-MOR			\$16,244.70
	Total 23277				\$16,244.70
Total Morris Law PC					\$16,244.70

Vendor	Number	Reference	Account Number	Description	Amount
Mt. View-Edgewood Water Co.					
		EFT Payment 5/3/2018 10:44:04 AM - 2	2018 - May - 1st Council Meeting		
		15690-3401 2/11-4/10/18			
			2/11-4/10/18 Services		
			001-018-000-518-30-47-02	Water	\$78.94
				Nelson Farm	
		Total 15690-3401 2/11-4/10/18			\$78.94
		19143-3401 2/11-4/10/18			
			2/11-4/10/18 Services		
			001-018-000-518-30-47-02	Water	\$54.55
				Nature Park	
		Total 19143-3401 2/11-4/10/18			\$54.55
		2-3401 2/11-4/10/18			
			2/11-4/10/18 Services		
			001-018-000-518-30-47-02	Water	\$156.56
				Edgemont Park	
		Total 2-3401 2/11-4/10/18			\$156.56
		Total EFT Payment 5/3/2018 10:44:04 AM - 2			\$290.05
Total Mt. View-Edgewood Water Co.					\$290.05
Office Depot					
	23270		2018 - May - 1st Council Meeting		
		126356593001			
			April Purchases		
			001-018-000-518-20-31-01	Office & Operational Supplies	\$115.33
				Laminating Supplies	
		Total 126356593001			\$115.33
		128642032001			
			April Purchases		
			001-018-000-518-20-31-01	Office & Operational Supplies	\$125.26
				Paper Towels	
		Total 128642032001			\$125.26
		128642201001			
			April Purchases		
			001-018-000-518-20-31-01	Office & Operational Supplies	\$72.67
				TP, Paper Clips, Post It Notes, Paper Towels	
		Total 128642201001			\$72.67
		128642202001			
			April Purchases		
			001-018-000-518-20-31-01	Office & Operational Supplies	\$21.96
				Bathroom Spray	
		Total 128642202001			\$21.96
		128642203001			
			April Purchases		
			001-018-000-518-20-31-01	Office & Operational Supplies	\$21.96

Vendor	Number	Reference	Account Number	Description	Amount
				Bathroom Spray	
		Total 128642203001			\$21.96
	Total 23270				\$357.18
Total Office Depot					\$357.18
Pierce County Budget & Finance					
	23271			2018 - May - 1st Council Meeting	
		CI-249259			
			Q1-2018 IT WAN Charges		
			001-014-000-518-80-49-03	Computer Subscriptions	\$45.00
				Q1 2018 IT (WAN) Charges	
		Total CI-249259			\$45.00
	Total 23271				\$45.00
Total Pierce County Budget & Finance					\$45.00
Pierce County Budget & Finance Jail					
	23272			2018 - May - 1st Council Meeting	
		CI-249098			
			March Services		
			001-021-000-523-60-51-01	Jail Services	\$7,235.10
		Total CI-249098			\$7,235.10
	Total 23272				\$7,235.10
Total Pierce County Budget & Finance Jail					\$7,235.10
Refunds/Reimbursements Vendor					
	23273			2018 - May - 1st Council Meeting	
		042018-ABACO		ABACO Contractors LLC	
			Refund-File 5225 Review Fees		
			001-058-000-558-60-41-01	Reim.Engineering - Prof. Serv	\$1,627.50
				File 5225-Rainier Vista-Overpayment on Fees	
		Total 042018-ABACO			\$1,627.50
	Total 23273				\$1,627.50
	23274			2018 - May - 1st Council Meeting	
		042518-JC		Jamie M Curbow	
			Mileage Reimbursement		
			001-058-000-558-50-43-01	Training/Travel Costs	\$164.59
				WSAPT Conference-Leavenworth	
		Total 042518-JC			\$164.59
	Total 23274				\$164.59

Vendor	Number	Reference	Account Number	Description	Amount
	23275			2018 - May - 1st Council Meeting	
		042618-DG		David D Gray	
			Lunch Meeting Reimbursement		
			001-014-000-514-20-43-04	Meals Expense	\$22.85
				Pierce County Chief Mtg	
		Total 042618-DG			\$22.85
	Total 23275				\$22.85
Total Refunds/Reimbursements Vendor					\$1,814.94
Verizon Wireless					
	EFT Payment 5/3/2018 10:44:04 AM - 3			2018 - May - 1st Council Meeting	
	9806002041				
			4/24-5/23/18 Services		
			001-018-000-518-30-42-01	Telecommunications Charges	\$511.07
				City Cell Phones	
		Total 9806002041			\$511.07
	Total EFT Payment 5/3/2018 10:44:04 AM - 3				\$511.07
Total Verizon Wireless					\$511.07
Wells Fargo Vendor Fin Serv					
	EFT Payment 5/3/2018 10:44:04 AM - 4			2018 - May - 1st Council Meeting	
	68288256				
			June Lease		
			001-018-000-518-30-45-06	Copier Lease	\$368.17
				Kyocera Lease	
		Total 68288256			\$368.17
	68305727				
			Property Tax-Kyocera		
			001-018-000-518-30-45-06	Copier Lease	\$182.87
				Kyocera-Annual Property Tax	
		Total 68305727			\$182.87
	Total EFT Payment 5/3/2018 10:44:04 AM - 4				\$551.04
Total Wells Fargo Vendor Fin Serv					\$551.04
Wilbur-Ellis Company					
	23276			2018 - May - 1st Council Meeting	
		11649725			
			April Purchases		
			001-076-000-576-80-31-09	Chemicals	\$55.14
				Weedmaster	
		Total 11649725			\$55.14
	Total 23276				\$55.14
Total Wilbur-Ellis Company					\$55.14
Grand Total		Vendor Count	21		\$51,592.32



CITY OF EDGEWOOD
REQUEST FOR COUNCIL ACTION
Agenda Bill No.: 18-021

Date Action Requested: May 8, 2018

Title: Authorizing the Mayor to Execute Morgan Sound Purchase Order 2018013

Attachments: Morgan Sound Purchase Order 2018013

Submitted By: Dave Gray, Assistant City Administrator

Approved For Agenda By: Daryl Eidinger, Mayor

Prepared For Agenda By: Stephanie Goff, Accounting Manager

Recommendation: Move to authorize the Mayor to execute the Morgan Sound Purchase Order 2018013 in the sum of \$54,745.32.

Discussion: The Council has discussed and reviewed options for upgrading the video and audio systems in the Council Chambers for over a year. After requests for proposals and a review of three potential providers, Staff has recommended and Fife IT has supported purchasing the bulk of the Council Chambers upgrade from Morgan Sound. Morgan Sounds individual components (all the proposals had variances in equipment solutions) that were comparable between proposals were less cost. Morgan sound was also the most comprehensive solution proposal and after reviewing other cities experiences with them staff (including Fife IT) feels they will produce the best overall solution at a competitive price.

Alternatives: 1) Do not adopt. 2) Forward to Study Session for further review.

Fiscal Impact: The purchase of \$54,745.32 is in the capital budget for 2018 as part of the \$200,000 information system & security upgrade (SmartGov, Bluetooth, Security Video & Visualization work tools).



CITY OF EDGEWOOD PURCHASE ORDER

DATE: 4/30/2018	INTERNAL:	VENDOR: Morgan Sound	PO NUMBER: 2018013
DELIVERY METHOD:		DELIVERY DATE:	
SPECIAL INSTRUCTIONS:			
COUNT:	DESCRIPTION:	UNIT \$	TOTAL \$
	Council Chambers Audio-Visual Updates		
	Audio Upgrades & Programming		\$2,219.20
	Study Session Mic System		\$9,781.65
	Video Projection System Upgrade		\$22,935.51
	Control System Upgrade		\$10,131.46
	Streaming Camera		\$5,784.92
	A-V Podium		\$3,892.58
			\$0.00
			\$0.00
			\$0.00
			\$0.00
			\$0.00
			\$0.00
SUBTOTAL			\$54,745.32
Included in quote SALES TAX			\$0.00
STATE BID CONTRACT NUMBER:		PO TOTAL	\$54,745.32
BARS NUMBERS			
BARS NUMBERS			
BARS NUMBERS			
BARS NUMBERS			
BARS NUMBERS			
AUTHORIZATION LEVEL: Council Agenda Bill 18-021		BARS TOTAL	0.00
AUTHORIZED BY: Mayor			
SIGNATURE:			

CONTACT/CONFIRMATION INFORMATION:

City of Edgewood
Finance Department
2224 104th Avenue East
Edgewood, WA 98372-1513
(253)952-3299
finance@cityofedgewood.org



CITY OF EDGEWOOD
REQUEST FOR COUNCIL ACTION
Agenda Bill No.: 18-0403

Date Action Requested: May 8, 2018

Title: Establishing All-Way Stop at 24th Street East and 122nd Avenue East

Attachments: Memo: *Evaluation of All-Way Stop at 24th Street E / 122nd Avenue E*
Resolution 18-0403

Submitted By: Jeremy Metzler, PE – Public Works Director

Approved For Agenda By: Daryl Eidinger, Mayor

Prepared For Agenda By: Jeremy Metzler, PE – Public Works Director

Recommendation: Adopt the attached resolution, directing Staff to install all-way stop control at the intersection of 24th Street East and 122nd Avenue East.

Discussion: Increased traffic volumes and speeds have been a topic of concern and discussion with the City Council, recently resulting in the reduction of arterial speed limits throughout the City with the adoption of Ordinance 18-0519. The intersection of 24th Street East and 122nd Avenue East has been one of three intersections under consideration for all-way stop control, particularly in light of a significant collision that occurred in 2017. The City's Traffic Engineering Consultant, Transpo Group, reviewed this intersection in June 2017 and was unable to find engineering justification for establishing a four-way stop at this location. There has also been some discussion regarding design and installation of a roundabout at this location, but that alternative would require engineering design and acquisition of necessary right-of-way.

Regardless of the analysis results, the City Council has the authority to establish stop control at "any particular intersection" per RCW 46.61.200. Considering Council's immediate concerns, how additional traffic control measures will serve to help protect the public's health and safety, the discussed perception of limited sight distance at this intersection, and immediate ability to implement a low-cost solution, Staff supports installing all-way stop control for this intersection at this time.

Alternatives: 1) Do not adopt. 2) Forward to Study Session for further review.

Fiscal Impact: Implementation of this resolution will result in four new permanent signs, four temporary warning signs, two new stop bars, and two replacement lenses on the existing flashing light, for a total estimated cost of less than \$2,500.

RESOLUTION NO. 18-0403

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF EDGEWOOD, PIERCE COUNTY, WASHINGTON ESTABLISHING ALL-WAY STOP CONTROL AT THE INTERSECTION OF 24TH STREET EAST AND 122ND AVENUE EAST

WHEREAS, traffic volumes on certain arterial streets within the City have increased to the extent that the City Council believes additional traffic control measures are necessary to protect the public's health and safety; and

WHEREAS, on June 14, 2017, the City's Traffic Engineering Consultant, Transpo Group, issued a technical memorandum titled "Evaluation of All-Way Stop at 24th Street E / 122nd Avenue E", finding "existing traffic conditions at 24th Street E / 122nd Avenue E do not satisfy any of the criteria described in the *Manual on Uniform Traffic Control Devices (MUTCD)* for installing all-way stop control"; and

WHEREAS, the City Council reviewed the Transpo Group memorandum at their April 3, 2018 and May 1, 2018 Study Sessions; and

WHEREAS, there was discussion regarding limited sight distance at the intersection raising safety concerns for traffic entering 122nd Avenue East; and

WHEREAS, Revised Code of Washington (RCW) 46.61.200 assigns local authorities with "the power to determine and designate any particular intersection... with which vehicles shall be required to stop before entering such intersection"; and

WHEREAS, the Transpo Group memorandum provides specific implementation recommendations "should the City of Edgewood choose to implement all-way stop control";

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF EDGEWOOD, WASHINGTON, DOES RESOLVE AS FOLLOWS:

Section 1. The intersection of 24th Street East and 122nd Avenue East shall hereby be designated as a "stop intersection", pursuant to RCW 46.61.200.

Section 2. The City's Traffic Engineer is hereby directed to post appropriate signage and install traffic control devices at this intersection pursuant to the RCW and MUTCD, following the June 14, 2017 Transpo Group technical memorandum recommendations.

**PASSED BY THE CITY COUNCIL OF THE CITY OF EDGEWOOD,
WASHINGTON, AT A REGULAR MEETING THEREOF, THIS 8TH DAY OF
MAY, 2018.**

Daryl Eiding, Mayor

ATTEST:

Rachel Pitzel, City Clerk

TECHNICAL MEMORANDUM

Date:	June 14, 2017	TG:	13312.00
To:	Aaron C. Nix, MPA – City of Edgewood		
From:	Kevin L. Jones, P.E., PTOE – Transpo Group		
cc:	Jon Pascal, P.E., PTOE – Transpo Group		
Subject:	Evaluation of All-Way Stop at 24th Street E/122nd Avenue E		

The City of Edgewood requested an analysis of the intersection of 24th Street E and 122nd Avenue E to determine if existing traffic conditions would support all-way stop control. The eastbound and westbound approaches of 24th Street E are currently stop sign controlled and the northbound and southbound approaches of 122nd Avenue E are currently uncontrolled. As part of this analysis, we obtained recent collision records and collected existing traffic volume and speed data. Our findings and overall recommendations are summarized in this memorandum.

Summary of Findings

We determined that existing traffic conditions at 24th Street E/122nd Avenue E do not satisfy any of the criteria described in the *Manual on Uniform Traffic Control Devices (MUTCD)* for installing all-way stop control. For example:

- There were not 5 or more reported crashes in any 12-month period susceptible to correction with all-way stop control;
- Existing traffic volumes on 24th Street E are well below the minimum volume threshold supporting all-way stop control;
- There is not a compelling need to control left-turn conflicts because, on average, only 1 left-turn type collision was reported per year during the recent 5-year period; and
- All-way stop control is not necessary to control an established history of vehicle/pedestrian conflicts.

We also determined that all-way stop control would result in a total increase of 113 vehicle-minutes of delay at the intersection during the two hours of greatest traffic demand. Therefore, **we recommend maintaining the existing two-way stop control at the 24th Street E/122nd Avenue E intersection and not converting to all-way stop control.** Nevertheless, should the City of Edgewood choose to implement all-way stop control, page 4 summarizes our recommendations to aid with implementation.

Study Area

The study area focused on 24th Street E/122nd Avenue E. Both intersecting streets are 2-lane minor arterials with a 35-mph posted speed limit. Neither sidewalk nor on-street parking exists on 24th Street E and 122nd Avenue near the intersection. The eastbound and westbound approaches of 24th Street E are currently stop sign controlled and the northbound and southbound approaches of 122nd Avenue E are currently uncontrolled. A white stop bar exists on the eastbound approach; no such stop bar exists on the westbound approach.

Data Collection

Intersection collision records were obtained from the Washington State Department of Transportation (WSDOT) for the most-recent 5-year period (2012 through 2016). A summary of these records is attached. IDAX Data Solutions collected 24-hour traffic volumes on all four intersection approaches on Tuesday, Wednesday and Thursday, May 16-18, 2017 as well as AM and PM peak period turning movements on Thursday, May 18, 2017. IDAX also collected 24-hour vehicle speed data on 122nd Avenue E north and south of 24th Street E on Tuesday, Wednesday and Thursday, May 16-18, 2017. All existing traffic volume and speed data are attached as well.

All-Way Stop Analysis

The *MUTCD* was used as a guide to this analysis and is approved to supplement the *Manual on Design Guidelines and Specifications for Road and Bridge Construction in Pierce County*. Section 8-3 of the City of Edgewood's Draft Road Standards also states, "All traffic control and traffic control devices shall be in conformance with the *MUTCD*." As described in the *MUTCD*, the decision to implement all-way stop control should be based on an engineering study.

An engineering study was performed at 24th Street E/122nd Avenue E to determine if all-way stop control is warranted based on existing conditions. The *MUTCD* provides criteria that "should" or "may" be considered for all-way stop application. The difference between "should" and "may" language in the *MUTCD* is that "should" suggests that all-way stop be installed if criteria is met. The word "may" provides discretion to install all-way stop control if other criteria is met.

Criteria identified in the *MUTCD* that is relevant to the all-way stop application at 24th Street E/122nd Avenue E are shown below. For ease of understanding, the criteria have been separated to distinguish whether all-way stop control "should" or "may" be installed.

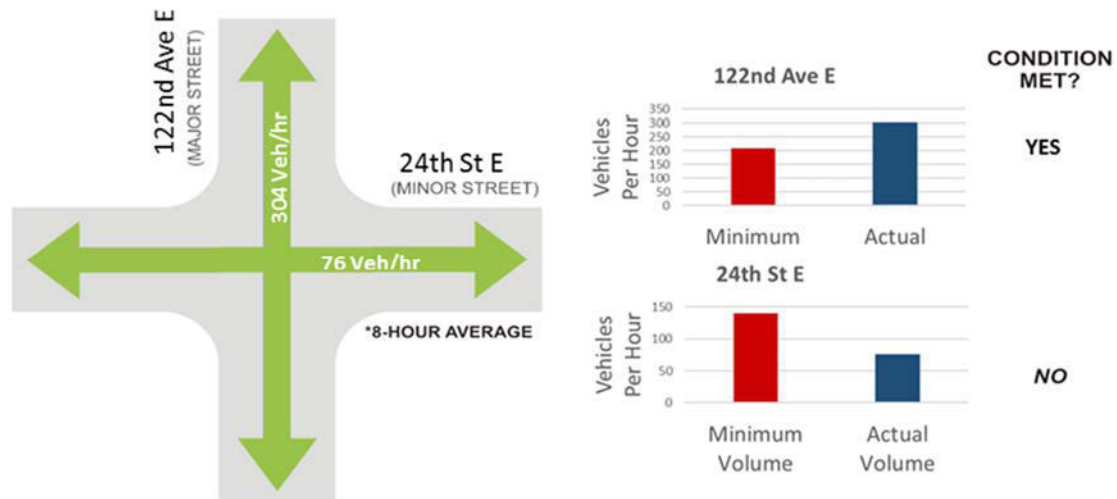
Criteria that "should" be considered:

1. The *MUTCD* uses traffic safety and collisions as one indicator to determine whether all-way stop control is warranted at an intersection. Intersections with a potential crash problem are those identified by 5 or more reported crashes in a 12-month period. The attached collision record summary illustrates that there was not 5 or more reported crashed in any 12-month period susceptible to correction with all-way stop control during the recent 5-year period. In fact, most years there was no more than 2 reported collisions and no reported collisions in 2014.
2. The *MUTCD* suggests vehicular volumes traveling along the major street (122nd Avenue E) should average at least 300 vehicles per hour for any 8 hours during a typical weekday, AND vehicles traveling along the minor street (24th Street E) should average at least 200 vehicles per hour for the same 8 hours as a basis for installing all-way stop control.

These traffic volume thresholds can be reduced by 30 percent if the 85th-percentile speed of the major street exceeds 40 mph. A review of the speed data at the intersection shows that the 85th-percentile speed on northbound 122nd Avenue E south of 24th Street E is approximately 40 mph and the 85th-percentile speed on southbound 122nd Avenue E north of 24th Street E is more than 41 mph. Therefore, it is reasonable to adjust the traffic thresholds and the vehicle volumes are reduced to an average of at least 210 vehicles per hour on the major street AND an average of at least 140 vehicles per hour on the minor street for any 8 hours during a typical weekday.

Figure 1 illustrates the results of the intersection volume analysis.

Figure 1. Intersection Volume Analysis



As shown in Figure 1, the vehicle volumes on the major street exceed the threshold; however, traffic counted on the minor street is well below the threshold and both thresholds must be met to support all-way stop control.

Criteria that “may” be considered:

1. “The need to control left-turn conflicts” – There is not a compelling need to control left-turn conflicts because, on average, only 1 left-turn type collision was reported per year during the recent 5-year period.
2. “The need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes” – The need to control these conflicts is not compelling as low pedestrian volumes exist at the intersection and none of the collisions reported during the recent 5-year period involved pedestrians.
3. “Locations where a road user, after stopping, cannot see conflicting traffic and is not able to negotiate the intersection unless conflicting cross traffic is also required to stop” – This criterion is not met as no such sight distance obstructions exist at the intersection.
4. “An intersection of two residential neighborhood collector streets of similar design and operating characteristics where multi-way stop control would improve traffic operational characteristics of the intersection” – This criterion is not met as both streets are classified as minor arterials and the operating characteristics of 122nd Avenue E is much different than 24th Street E.

Traffic Operations Summary

A traffic operations analysis was performed based on two-way stop control, existing AM and PM peak hour turning movement counts, and using *Synchro* software. Traffic operations worksheets are attached to this memo.

We determined that the westbound approach experiences the most average vehicle delay, including nearly 12 seconds during the AM peak hour and approximately 15 seconds during the

PM peak hour. The eastbound approach experiences less average vehicle delay, including approximately 9 seconds during the AM peak hour and nearly 13 seconds during the PM peak hour.

All-way stop control would reduce existing average vehicle delays associated with the eastbound and westbound approaches. For example, the westbound approach would experience approximately 8 seconds of delay during both peak hours (a decrease of 4 seconds during the AM peak hour and decrease of 7 seconds during the PM peak hour). The northbound and southbound approaches would experience more average vehicle delay with all-way stop control, including 8-9 seconds during the AM peak hour and 9-11 seconds during the PM peak hour.

A better way to compare the relative change in delay between two-way stop control and all-way stop control is to sum the total vehicle-minutes of delay during both peak hours. This shows that all-way stop control would reduce the total eastbound and westbound delay by nearly 11 vehicle-minutes but increase the total northbound and southbound delay by nearly 124 vehicle-minutes, a net increase of over 113 vehicle-minutes during the collective 2-hour period. This does not account for relative increases and decreases in delay during the non-peak hours of the day.

Implementation

Installation of all-way stop control at 24th Street E/122nd Avenue E is not recommended based on the engineering study summarized in this memo. Nevertheless, should the City of Edgewood choose to implement all-way stop control either this year or sometime in the future, the following guidelines provide information to aid the implementation process.

- New STOP signs (R1-1) should be installed on the northbound and southbound approaches of the intersection.
- New ALL WAY supplemental plaques (R1-3P) should be installed below all existing and new STOP signs.
- New signs indicating that a stop sign is ahead (W3-1) should be installed on northbound and southbound 122nd Avenue E in advance of the intersection.
 - These signs should be accompanied by two orange flags attached to the top of the sign in a diagonal direction to better highlight the sign.
 - These signs could be removed after a 6-month transition period.
- New thermoplastic, white stop bars should be installed on the northbound, southbound and westbound approaches of the intersection.
- All overhead yellow bulbs should be replaced with red bulbs.

Attachments: Collision Records Summary
24-Hour Traffic Volumes
24-Hour Speed Data
Peak Hour Turning Movement Counts
Traffic Operations Worksheets



Collisions¹ at the intersection of 122nd Ave E and 24th St E, Edgewood WA

	Collision Type				Collision Severity			
	A	B	C	D	E	F	G	H
Year	Left-Turn	Right-Turn	Right-angle	Other	PDO	Injury	Fatality	Total
2012	1	0	0	1	1	1	0	2
2013	2	0	0	0	1	1	0	2
2014	0	0	0	0	0	0	0	0
2015	1	0	0	1	1	1	0	2
2016	1	0	0	1	2	0	0	2
Total	5	0	0	3	5	3	0	8

1. All collisions were within 300' of the intersection

Source: Washington Department of Transportation Collision Data, Accessed 5/18/2018

Location: 24TH ST E E/O 122ND AVE E
 Date Range: 5/16/2017 - 5/22/2017
 Site Code: 01



Time	Tuesday			Wednesday			Thursday			Friday			Saturday			Sunday			Monday			Mid-Week Average		
	5/16/2017			5/17/2017			5/18/2017			5/19/2017			5/20/2017			5/21/2017			5/22/2017					
	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total
12:00 AM	2	1	3	2	0	2	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	1	0	2
1:00 AM	1	1	2	1	0	1	1	1	2	-	-	-	-	-	-	-	-	-	-	-	1	1	2	
2:00 AM	0	1	1	1	1	2	0	1	1	-	-	-	-	-	-	-	-	-	-	-	0	1	1	
3:00 AM	0	0	0	0	1	1	0	3	3	-	-	-	-	-	-	-	-	-	-	-	0	1	1	
4:00 AM	1	6	7	1	6	7	1	5	6	-	-	-	-	-	-	-	-	-	-	-	1	6	7	
5:00 AM	1	7	8	1	8	9	0	5	5	-	-	-	-	-	-	-	-	-	-	-	1	7	7	
6:00 AM	4	10	14	0	11	11	3	11	14	-	-	-	-	-	-	-	-	-	-	-	2	11	13	
7:00 AM	7	25	32	4	18	22	3	26	29	-	-	-	-	-	-	-	-	-	-	-	5	23	28	
8:00 AM	4	12	16	8	14	22	13	9	22	-	-	-	-	-	-	-	-	-	-	-	8	12	20	
9:00 AM	4	14	18	9	12	21	6	19	25	-	-	-	-	-	-	-	-	-	-	-	6	15	21	
10:00 AM	8	6	14	7	7	14	9	6	15	-	-	-	-	-	-	-	-	-	-	-	8	6	14	
11:00 AM	17	9	26	9	8	17	10	12	22	-	-	-	-	-	-	-	-	-	-	-	12	10	22	
12:00 PM	16	14	30	7	9	16	18	12	30	-	-	-	-	-	-	-	-	-	-	-	14	12	25	
1:00 PM	17	5	22	11	8	19	12	12	24	-	-	-	-	-	-	-	-	-	-	-	13	8	22	
2:00 PM	18	10	28	17	12	29	20	13	33	-	-	-	-	-	-	-	-	-	-	-	18	12	30	
3:00 PM	20	13	33	28	14	42	19	7	26	-	-	-	-	-	-	-	-	-	-	-	22	11	34	
4:00 PM	20	12	32	16	7	23	17	11	28	-	-	-	-	-	-	-	-	-	-	-	18	10	28	
5:00 PM	19	13	32	25	13	38	23	11	34	-	-	-	-	-	-	-	-	-	-	-	22	12	35	
6:00 PM	16	19	35	18	10	28	15	16	31	-	-	-	-	-	-	-	-	-	-	-	16	15	31	
7:00 PM	12	7	19	9	3	12	12	11	23	-	-	-	-	-	-	-	-	-	-	-	11	7	18	
8:00 PM	15	6	21	10	5	15	17	8	25	-	-	-	-	-	-	-	-	-	-	-	14	6	20	
9:00 PM	5	2	7	11	2	13	7	3	10	-	-	-	-	-	-	-	-	-	-	-	8	2	10	
10:00 PM	2	2	4	2	2	4	2	0	2	-	-	-	-	-	-	-	-	-	-	-	2	1	3	
11:00 PM	3	4	7	4	0	4	3	0	3	-	-	-	-	-	-	-	-	-	-	-	3	1	5	
Total	212	199	411	201	171	372	211	202	413	-	-	-	-	-	-	-	-	-	-	-	208	191	399	
Percent	52%	48%	-	54%	46%	-	51%	49%	-	-	-	-	-	-	-	-	-	-	-	-	52%	48%	-	

1. Mid-week average includes data between Tuesday and Thursday.

Location: 24TH ST E W/O 122ND AVE E
 Date Range: 5/16/2017 - 5/22/2017
 Site Code: 02

Time	Tuesday			Wednesday			Thursday			Friday			Saturday			Sunday			Monday			Mid-Week Average		
	5/16/2017			5/17/2017			5/18/2017			5/19/2017			5/20/2017			5/21/2017			5/22/2017					
	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total
12:00 AM	8	2	10	5	0	5	6	2	8	-	-	-	-	-	-	-	-	-	-	-	6	1	8	
1:00 AM	1	1	2	1	1	2	4	0	4	-	-	-	-	-	-	-	-	-	-	-	2	1	3	
2:00 AM	3	2	5	5	1	6	1	4	5	-	-	-	-	-	-	-	-	-	-	-	3	2	5	
3:00 AM	2	0	2	2	2	4	3	1	4	-	-	-	-	-	-	-	-	-	-	-	2	1	3	
4:00 AM	6	11	17	3	9	12	4	12	16	-	-	-	-	-	-	-	-	-	-	-	4	11	15	
5:00 AM	6	17	23	8	19	27	5	18	23	-	-	-	-	-	-	-	-	-	-	-	6	18	24	
6:00 AM	11	39	50	17	47	64	13	39	52	-	-	-	-	-	-	-	-	-	-	-	14	42	55	
7:00 AM	44	92	136	52	79	131	43	75	118	-	-	-	-	-	-	-	-	-	-	-	46	82	128	
8:00 AM	39	48	87	41	47	88	34	39	73	-	-	-	-	-	-	-	-	-	-	-	38	45	83	
9:00 AM	45	40	85	40	46	86	36	45	81	-	-	-	-	-	-	-	-	-	-	-	40	44	84	
10:00 AM	41	47	88	31	33	64	40	34	74	-	-	-	-	-	-	-	-	-	-	-	37	38	75	
11:00 AM	37	47	84	39	48	87	54	46	100	-	-	-	-	-	-	-	-	-	-	-	43	47	90	
12:00 PM	38	36	74	45	51	96	35	38	73	-	-	-	-	-	-	-	-	-	-	-	39	42	81	
1:00 PM	34	35	69	45	41	86	60	42	102	-	-	-	-	-	-	-	-	-	-	-	46	39	86	
2:00 PM	59	48	107	63	45	108	72	54	126	-	-	-	-	-	-	-	-	-	-	-	65	49	114	
3:00 PM	87	52	139	74	44	118	72	42	114	-	-	-	-	-	-	-	-	-	-	-	78	46	124	
4:00 PM	79	78	157	70	42	112	81	49	130	-	-	-	-	-	-	-	-	-	-	-	77	56	133	
5:00 PM	82	57	139	101	78	179	97	66	163	-	-	-	-	-	-	-	-	-	-	-	93	67	160	
6:00 PM	76	33	109	66	50	116	73	61	134	-	-	-	-	-	-	-	-	-	-	-	72	48	120	
7:00 PM	44	41	85	54	45	99	33	40	73	-	-	-	-	-	-	-	-	-	-	-	44	42	86	
8:00 PM	43	31	74	38	40	78	42	32	74	-	-	-	-	-	-	-	-	-	-	-	41	34	75	
9:00 PM	19	11	30	24	19	43	25	16	41	-	-	-	-	-	-	-	-	-	-	-	23	15	38	
10:00 PM	8	10	18	4	6	10	10	11	21	-	-	-	-	-	-	-	-	-	-	-	7	9	16	
11:00 PM	7	5	12	4	4	8	3	0	3	-	-	-	-	-	-	-	-	-	-	-	5	3	8	
Total	819	783	1,602	832	797	1,629	846	766	1,612	-	-	-	-	-	-	-	-	-	-	-	832	782	1,614	
Percent	51%	49%	-	51%	49%	-	52%	48%	-	-	-	-	-	-	-	-	-	-	-	-	52%	48%	-	

1. Mid-week average includes data between Tuesday and Thursday.

Location: 122ND AVE E N/O 24TH ST E
 Date Range: 5/16/2017 - 5/22/2017
 Site Code: 03

Time	Tuesday			Wednesday			Thursday			Friday			Saturday			Sunday			Monday			Mid-Week Average		
	5/16/2017			5/17/2017			5/18/2017			5/19/2017			5/20/2017			5/21/2017			5/22/2017					
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total
12:00 AM	5	6	11	6	5	11	5	3	8	-	-	-	-	-	-	-	-	-	-	-	-	5	5	10
1:00 AM	2	2	4	2	2	4	3	1	4	-	-	-	-	-	-	-	-	-	-	-	-	2	2	4
2:00 AM	3	4	7	2	3	5	2	2	4	-	-	-	-	-	-	-	-	-	-	-	-	2	3	5
3:00 AM	8	0	8	8	1	9	9	0	9	-	-	-	-	-	-	-	-	-	-	-	-	8	0	9
4:00 AM	34	5	39	35	5	40	30	6	36	-	-	-	-	-	-	-	-	-	-	-	-	33	5	38
5:00 AM	113	13	126	153	18	171	104	17	121	-	-	-	-	-	-	-	-	-	-	-	-	123	16	139
6:00 AM	165	44	209	190	36	226	146	36	182	-	-	-	-	-	-	-	-	-	-	-	-	167	39	206
7:00 AM	205	48	253	216	57	273	205	49	254	-	-	-	-	-	-	-	-	-	-	-	-	209	51	260
8:00 AM	129	55	184	126	58	184	112	59	171	-	-	-	-	-	-	-	-	-	-	-	-	122	57	180
9:00 AM	71	43	114	76	56	132	85	60	145	-	-	-	-	-	-	-	-	-	-	-	-	77	53	130
10:00 AM	59	57	116	73	59	132	86	50	136	-	-	-	-	-	-	-	-	-	-	-	-	73	55	128
11:00 AM	67	68	135	66	57	123	88	68	156	-	-	-	-	-	-	-	-	-	-	-	-	74	64	138
12:00 PM	64	57	121	74	70	144	76	77	153	-	-	-	-	-	-	-	-	-	-	-	-	71	68	139
1:00 PM	69	66	135	65	96	161	78	78	156	-	-	-	-	-	-	-	-	-	-	-	-	71	80	151
2:00 PM	76	119	195	94	133	227	82	166	248	-	-	-	-	-	-	-	-	-	-	-	-	84	139	223
3:00 PM	96	257	353	95	274	369	92	278	370	-	-	-	-	-	-	-	-	-	-	-	-	94	270	364
4:00 PM	96	369	465	97	352	449	114	370	484	-	-	-	-	-	-	-	-	-	-	-	-	102	364	466
5:00 PM	87	316	403	86	297	383	128	321	449	-	-	-	-	-	-	-	-	-	-	-	-	100	311	412
6:00 PM	83	172	255	91	147	238	113	162	275	-	-	-	-	-	-	-	-	-	-	-	-	96	160	256
7:00 PM	43	81	124	53	55	108	68	66	134	-	-	-	-	-	-	-	-	-	-	-	-	55	67	122
8:00 PM	47	49	96	53	55	108	55	65	120	-	-	-	-	-	-	-	-	-	-	-	-	52	56	108
9:00 PM	32	26	58	23	36	59	35	42	77	-	-	-	-	-	-	-	-	-	-	-	-	30	35	65
10:00 PM	7	17	24	12	19	31	18	22	40	-	-	-	-	-	-	-	-	-	-	-	-	12	19	32
11:00 PM	6	8	14	8	10	18	6	15	21	-	-	-	-	-	-	-	-	-	-	-	-	7	11	18
Total	1,567	1,882	3,449	1,704	1,901	3,605	1,740	2,013	3,753	-	-	-	-	-	-	-	-	-	-	-	-	1,670	1,932	3,602
Percent	45%	55%	-	47%	53%	-	46%	54%	-	-	-	-	-	-	-	-	-	-	-	-	-	46%	54%	-

1. Mid-week average includes data between Tuesday and Thursday.

Location: 122ND AVE E S/O 24TH ST E
 Date Range: 5/16/2017 - 5/22/2017
 Site Code: 04

Time	Tuesday			Wednesday			Thursday			Friday			Saturday			Sunday			Monday			Mid-Week Average		
	5/16/2017			5/17/2017			5/18/2017			5/19/2017			5/20/2017			5/21/2017			5/22/2017					
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total
12:00 AM	5	11	16	6	8	14	6	6	12	-	-	-	-	-	-	-	-	-	-	-	-	6	8	14
1:00 AM	4	4	8	3	2	5	4	6	10	-	-	-	-	-	-	-	-	-	-	-	-	4	4	8
2:00 AM	3	6	9	1	5	6	5	3	8	-	-	-	-	-	-	-	-	-	-	-	-	3	5	8
3:00 AM	8	2	10	9	4	13	6	2	8	-	-	-	-	-	-	-	-	-	-	-	-	8	3	10
4:00 AM	41	12	53	39	7	46	35	7	42	-	-	-	-	-	-	-	-	-	-	-	-	38	9	47
5:00 AM	121	17	138	163	24	187	115	20	135	-	-	-	-	-	-	-	-	-	-	-	-	133	20	153
6:00 AM	190	44	234	214	41	255	170	40	210	-	-	-	-	-	-	-	-	-	-	-	-	191	42	233
7:00 AM	262	75	337	265	82	347	243	79	322	-	-	-	-	-	-	-	-	-	-	-	-	257	79	335
8:00 AM	161	87	248	149	86	235	136	78	214	-	-	-	-	-	-	-	-	-	-	-	-	149	84	232
9:00 AM	96	82	178	98	77	175	104	83	187	-	-	-	-	-	-	-	-	-	-	-	-	99	81	180
10:00 AM	93	80	173	97	83	180	117	81	198	-	-	-	-	-	-	-	-	-	-	-	-	102	81	184
11:00 AM	102	80	182	98	75	173	112	99	211	-	-	-	-	-	-	-	-	-	-	-	-	104	85	189
12:00 PM	87	78	165	106	93	199	100	90	190	-	-	-	-	-	-	-	-	-	-	-	-	98	87	185
1:00 PM	98	86	184	97	126	223	106	122	228	-	-	-	-	-	-	-	-	-	-	-	-	100	111	212
2:00 PM	112	156	268	120	170	290	109	215	324	-	-	-	-	-	-	-	-	-	-	-	-	114	180	294
3:00 PM	125	309	434	127	324	451	131	317	448	-	-	-	-	-	-	-	-	-	-	-	-	128	317	444
4:00 PM	148	422	570	127	394	521	146	426	572	-	-	-	-	-	-	-	-	-	-	-	-	140	414	554
5:00 PM	128	375	503	137	361	498	187	383	570	-	-	-	-	-	-	-	-	-	-	-	-	151	373	524
6:00 PM	91	220	311	121	185	306	147	220	367	-	-	-	-	-	-	-	-	-	-	-	-	120	208	328
7:00 PM	69	112	181	81	85	166	90	82	172	-	-	-	-	-	-	-	-	-	-	-	-	80	93	173
8:00 PM	66	70	136	75	71	146	69	82	151	-	-	-	-	-	-	-	-	-	-	-	-	70	74	144
9:00 PM	42	38	80	37	49	86	49	58	107	-	-	-	-	-	-	-	-	-	-	-	-	43	48	91
10:00 PM	13	22	35	15	20	35	27	26	53	-	-	-	-	-	-	-	-	-	-	-	-	18	23	41
11:00 PM	6	11	17	12	10	22	6	15	21	-	-	-	-	-	-	-	-	-	-	-	-	8	12	20
Total	2,071	2,399	4,470	2,197	2,382	4,579	2,220	2,540	4,760	-	-	-	-	-	-	-	-	-	-	-	-	2,163	2,440	4,603
Percent	46%	54%	-	48%	52%	-	47%	53%	-	-	-	-	-	-	-	-	-	-	-	-	-	47%	53%	-

1. Mid-week average includes data between Tuesday and Thursday.

Vehicle Speed Report Summary

Location: 122ND AVE E N/O 24TH ST E

Count Direction: Northbound / Southbound

Date Range: 5/16/2017 to 5/18/2017

Site Code: 03

	Speed Range (mph)																	Total
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	Volume
Study Total																		
Northbound	2	17	127	342	253	989	2,242	904	116	13	6	0	0	0	0	0	0	5,011
Percent	0.0%	0.3%	2.5%	6.8%	5.0%	19.7%	44.7%	18.0%	2.3%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%
Southbound	5	17	90	364	359	767	2,598	1,424	159	12	1	0	0	0	0	0	0	5,796
Percent	0.1%	0.3%	1.6%	6.3%	6.2%	13.2%	44.8%	24.6%	2.7%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%
Total	7	34	217	706	612	1,756	4,840	2,328	275	25	7	0	0	0	0	0	0	10,807
Percent	0.1%	0.3%	2.0%	6.5%	5.7%	16.2%	44.8%	21.5%	2.5%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Total Study Percentile Speed Summary				Total Study Speed Statistics			
Northbound				Northbound			
50th Percentile (Median)		36.7	mph	Mean (Average) Speed		35.6	mph
85th Percentile		40.7	mph	10 mph Pace		32.3 - 42.3	mph
95th Percentile		43.6	mph	Percent in Pace		70.7	%
Southbound				Southbound			
50th Percentile (Median)		37.6	mph	Mean (Average) Speed		36.4	mph
85th Percentile		41.5	mph	10 mph Pace		33.1 - 43.1	mph
95th Percentile		44.0	mph	Percent in Pace		72.1	%

Vehicle Speed Report Summary

Location: 122ND AVE E S/O 24TH ST E

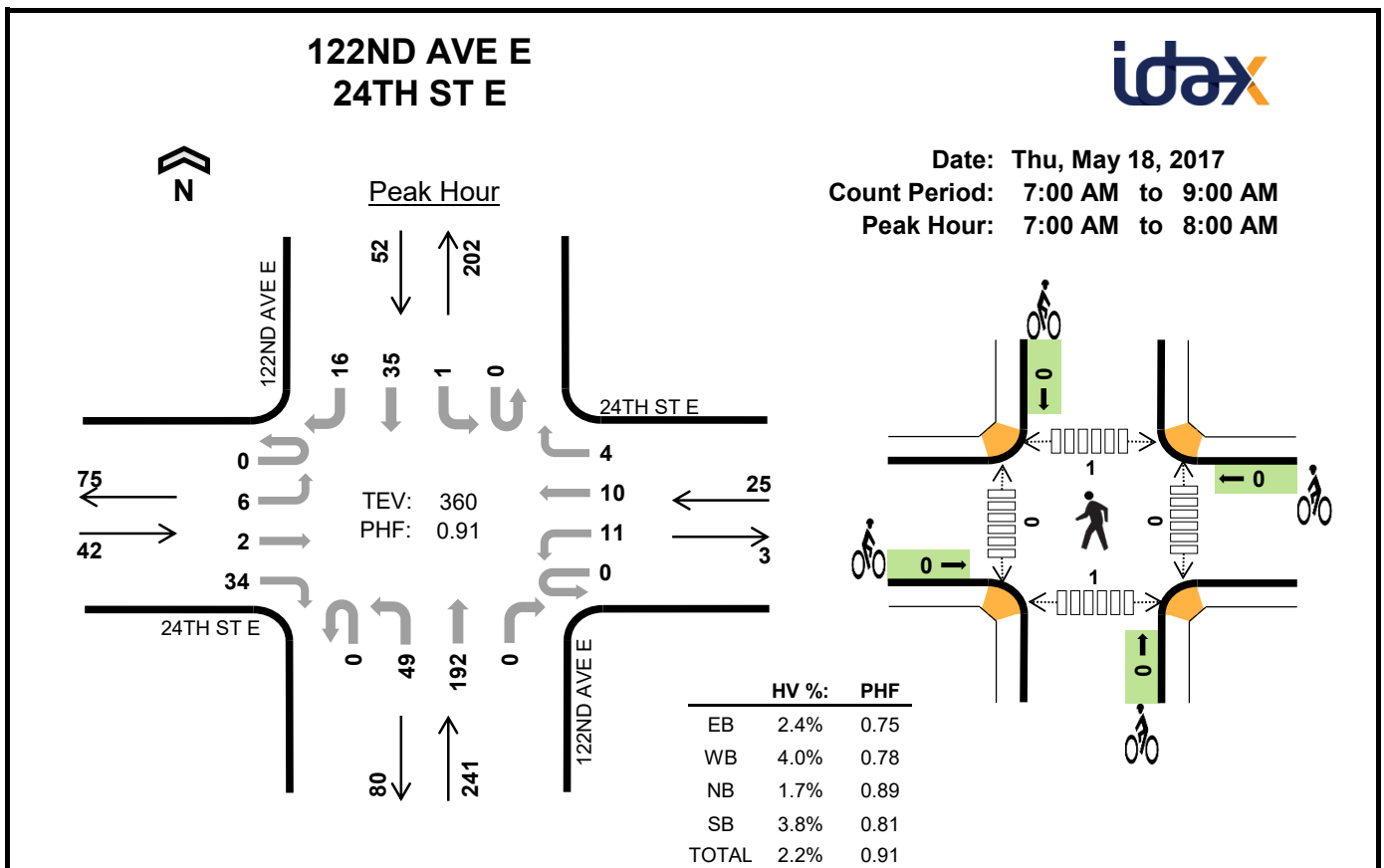
Count Direction: Northbound / Southbound

Date Range: 5/16/2017 to 5/18/2017

Site Code: 04

	Speed Range (mph)																	Total
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	Volume
Study Total																		
Northbound	8	44	210	1,027	1,138	1,037	2,136	778	98	9	3	0	0	0	0	0	0	6,488
Percent	0.1%	0.7%	3.2%	15.8%	17.5%	16.0%	32.9%	12.0%	1.5%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%
Southbound	8	30	543	1,329	344	628	2,402	1,756	258	18	5	0	0	0	0	0	0	7,321
Percent	0.1%	0.4%	7.4%	18.2%	4.7%	8.6%	32.8%	24.0%	3.5%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%
Total	16	74	753	2,356	1,482	1,665	4,538	2,534	356	27	8	0	0	0	0	0	0	13,809
Percent	0.1%	0.5%	5.5%	17.1%	10.7%	12.1%	32.9%	18.4%	2.6%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Total Study Percentile Speed Summary				Total Study Speed Statistics			
Northbound				Northbound			
50th Percentile (Median)	34.3	mph		Mean (Average) Speed	32.5	mph	
85th Percentile	39.7	mph		10 mph Pace	32.4 - 42.4	mph	
95th Percentile	42.5	mph		Percent in Pace	52.2	%	
Southbound				Southbound			
50th Percentile (Median)	36.9	mph		Mean (Average) Speed	33.8	mph	
85th Percentile	41.8	mph		10 mph Pace	34.8 - 44.8	mph	
95th Percentile	44.4	mph		Percent in Pace	57.1	%	

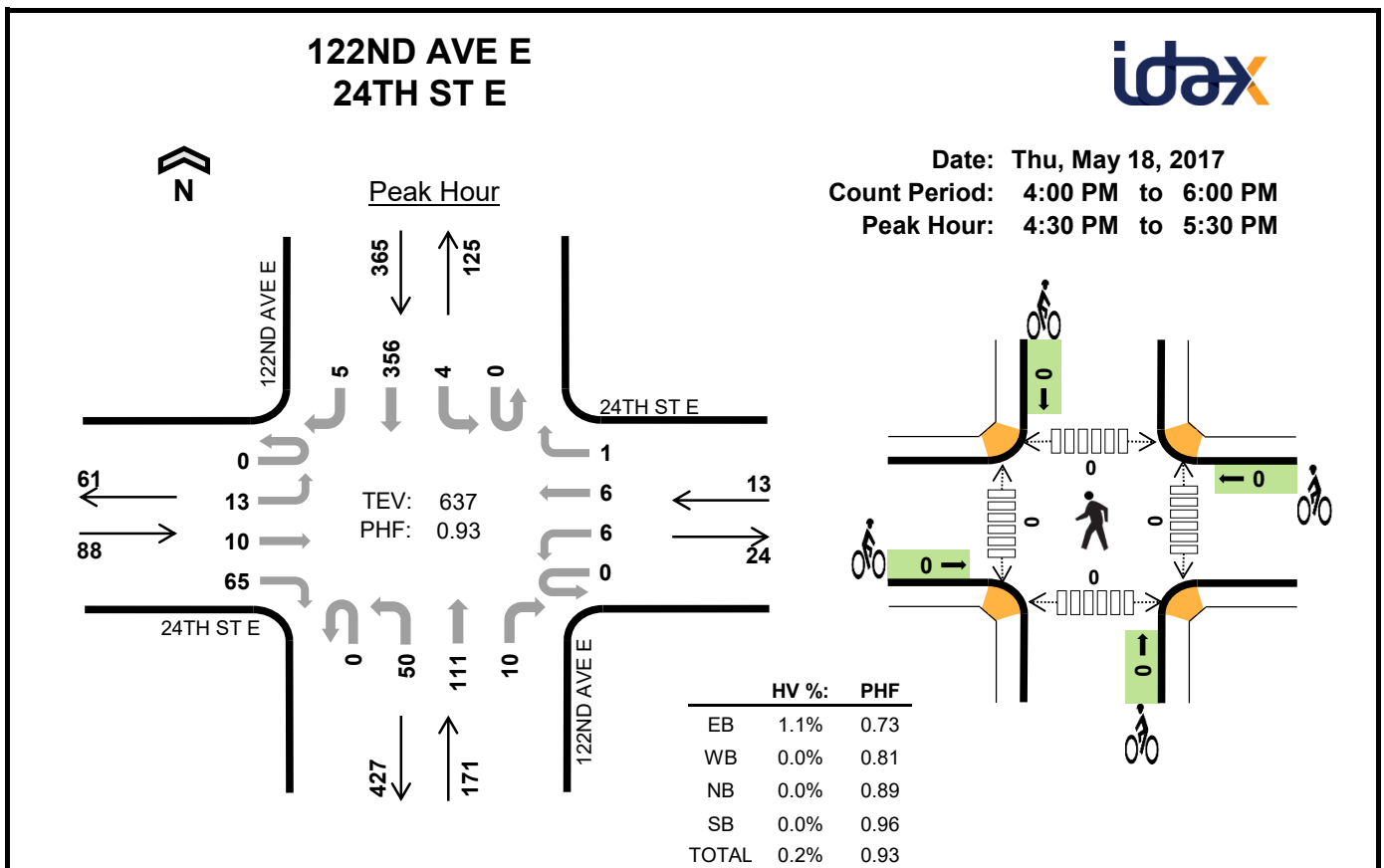


Two-Hour Count Summaries

Interval Start	24TH ST E Eastbound				24TH ST E Westbound				122ND AVE E Northbound				122ND AVE E Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	11	0	4	1	2	0	17	51	0	0	0	6	5	97	0
7:15 AM	0	4	0	10	0	3	3	0	0	13	50	0	0	1	9	6	99	0
7:30 AM	0	0	1	7	0	2	5	1	0	13	50	0	0	0	9	2	90	0
7:45 AM	0	2	1	6	0	2	1	1	0	6	41	0	0	0	11	3	74	360
8:00 AM	0	0	3	4	0	1	1	0	0	11	31	0	0	1	12	0	64	327
8:15 AM	0	2	2	5	0	1	3	0	0	3	21	0	0	0	4	1	42	270
8:30 AM	0	0	2	6	0	1	2	0	0	7	32	3	0	1	16	2	72	252
8:45 AM	0	3	0	7	0	0	0	0	0	5	20	1	0	0	17	4	57	235
Count Total	0	11	9	56	0	14	16	4	0	75	296	4	0	3	84	23	595	0
Peak Hour	0	6	2	34	0	11	10	4	0	49	192	0	0	1	35	16	360	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
7:45 AM	1	1	1	1	4	0	0	0	0	0	0	0	1	0	1
8:00 AM	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	1	1	2	0	0	0	0	0	0	0	0	1	1
8:30 AM	0	1	1	0	2	0	0	0	1	1	0	0	0	0	0
8:45 AM	0	0	1	0	1	0	0	0	0	0	0	0	1	1	2
Count Total	2	2	9	3	16	0	0	0	1	1	0	0	2	3	5
Peak Hour	1	1	4	2	8	0	0	0	0	0	0	0	1	1	2



Two-Hour Count Summaries

Interval Start	24TH ST E Eastbound				24TH ST E Westbound				122ND AVE E Northbound				122ND AVE E Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	1	2	12	0	2	0	0	0	1	28	2	0	1	77	3	129	0
4:15 PM	0	5	1	22	0	1	1	0	0	10	24	1	0	0	102	2	169	0
4:30 PM	0	5	3	12	0	1	1	1	0	15	25	1	0	0	89	3	156	0
4:45 PM	0	2	1	14	0	3	1	0	0	9	25	4	0	1	92	1	153	607
5:00 PM	0	3	3	15	0	0	3	0	0	17	29	2	0	2	82	0	156	634
5:15 PM	0	3	3	24	0	2	1	0	0	9	32	3	0	1	93	1	172	637
5:30 PM	0	3	1	16	0	2	1	0	0	14	24	3	0	1	73	3	141	622
5:45 PM	0	2	3	19	0	1	1	0	0	14	30	1	0	0	65	3	139	608
Count Total	0	24	17	134	0	12	9	1	0	89	217	17	0	6	673	16	1,215	0
Peak Hour	0	13	10	65	0	6	6	1	0	50	111	10	0	4	356	5	637	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Peak Hour	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	2	34	11	10	4	49	192	0	1	35	16
Future Vol, veh/h	6	2	34	11	10	4	49	192	0	1	35	16
Conflicting Peds, #/hr	1	0	1	1	0	1	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	4	4	4	2	2	2	4	4	4
Mvmt Flow	7	2	37	12	11	4	54	211	0	1	38	18
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	376	368	48	389	377	212	56	0	0	211	0	0
Stage 1	49	49	-	319	319	-	-	-	-	-	-	-
Stage 2	327	319	-	70	58	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.14	6.54	6.24	4.12	-	-	4.14	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.14	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.14	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.536	4.036	3.336	2.218	-	-	2.236	-	-
Pot Cap-1 Maneuver	581	561	1021	566	551	823	1549	-	-	1348	-	-
Stage 1	964	854	-	688	649	-	-	-	-	-	-	-
Stage 2	686	653	-	935	843	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	550	538	1020	526	528	822	1548	-	-	1347	-	-
Mov Cap-2 Maneuver	550	538	-	526	528	-	-	-	-	-	-	-
Stage 1	925	853	-	660	623	-	-	-	-	-	-	-
Stage 2	643	627	-	897	842	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	9.3			11.8			1.5			0.1		
HCM LOS	A			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1548	-	-	876	559	1347	-	-				
HCM Lane V/C Ratio	0.035	-	-	0.053	0.049	0.001	-	-				
HCM Control Delay (s)	7.4	0	-	9.3	11.8	7.7	0	-				
HCM Lane LOS	A	A	-	A	B	A	A	-				
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.2	0	-	-				

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	13	10	65	6	6	1	50	111	10	4	356	5
Future Vol, veh/h	13	10	65	6	6	1	50	111	10	4	356	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	0	0	0	0	0	0	0	0	0
Mvmt Flow	14	11	70	6	6	1	54	119	11	4	383	5
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	630	632	385	666	629	125	388	0	0	130	0	0
Stage 1	394	394	-	232	232	-	-	-	-	-	-	-
Stage 2	236	238	-	434	397	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	396	399	665	376	402	931	1182	-	-	1468	-	-
Stage 1	633	607	-	775	716	-	-	-	-	-	-	-
Stage 2	769	710	-	604	607	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	375	378	665	316	381	931	1182	-	-	1468	-	-
Mov Cap-2 Maneuver	375	378	-	316	381	-	-	-	-	-	-	-
Stage 1	602	605	-	737	681	-	-	-	-	-	-	-
Stage 2	724	675	-	529	605	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	12.8			15.3			2.4			0.1		
HCM LOS	B			C								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1182	-	-	554	363	1468	-	-				
HCM Lane V/C Ratio	0.045	-	-	0.171	0.039	0.003	-	-				
HCM Control Delay (s)	8.2	0	-	12.8	15.3	7.5	0	-				
HCM Lane LOS	A	A	-	B	C	A	A	-				
HCM 95th %tile Q(veh)	0.1	-	-	0.6	0.1	0	-	-				

Intersection

Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	6	2	34	0	11	10	4	0	49	192	0
Future Vol, veh/h	0	6	2	34	0	11	10	4	0	49	192	0
Peak Hour Factor	0.92	0.91	0.91	0.91	0.92	0.91	0.91	0.91	0.92	0.91	0.91	0.91
Heavy Vehicles, %	2	2	2	2	2	4	4	4	2	2	2	2
Mvmt Flow	0	7	2	37	0	12	11	4	0	54	211	0
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	7.5	7.9	9
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	20%	14%	44%	2%
Vol Thru, %	80%	5%	40%	67%
Vol Right, %	0%	81%	16%	31%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	241	42	25	52
LT Vol	49	6	11	1
Through Vol	192	2	10	35
RT Vol	0	34	4	16
Lane Flow Rate	265	46	27	57
Geometry Grp	1	1	1	1
Degree of Util (X)	0.305	0.054	0.036	0.067
Departure Headway (Hd)	4.145	4.221	4.725	4.222
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	861	852	762	853
Service Time	2.208	2.226	2.73	2.228
HCM Lane V/C Ratio	0.308	0.054	0.035	0.067
HCM Control Delay	9	7.5	7.9	7.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.3	0.2	0.1	0.2

Intersection

Intersection Delay, s/veh

Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Vol, veh/h	0	1	35	16
Future Vol, veh/h	0	1	35	16
Peak Hour Factor	0.92	0.91	0.91	0.91
Heavy Vehicles, %	2	4	4	4
Mvmt Flow	0	1	38	18
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	7.5
HCM LOS	A

Intersection	
Intersection Delay, s/veh	10.3
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	13	10	65	0	6	6	1	0	50	111	10
Future Vol, veh/h	0	13	10	65	0	6	6	1	0	50	111	10
Peak Hour Factor	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93
Heavy Vehicles, %	2	1	1	1	2	0	0	0	2	0	0	0
Mvmt Flow	0	14	11	70	0	6	6	1	0	54	119	11
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	8.5	8.5	9.1
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	29%	15%	46%	1%
Vol Thru, %	65%	11%	46%	98%
Vol Right, %	6%	74%	8%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	171	88	13	365
LT Vol	50	13	6	4
Through Vol	111	10	6	356
RT Vol	10	65	1	5
Lane Flow Rate	184	95	14	392
Geometry Grp	1	1	1	1
Degree of Util (X)	0.235	0.126	0.021	0.476
Departure Headway (Hd)	4.603	4.797	5.367	4.363
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	780	745	664	824
Service Time	2.638	2.841	3.421	2.392
HCM Lane V/C Ratio	0.236	0.128	0.021	0.476
HCM Control Delay	9.1	8.5	8.5	11.3
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.9	0.4	0.1	2.6

Intersection

Intersection Delay, s/veh

Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Vol, veh/h	0	4	356	5
Future Vol, veh/h	0	4	356	5
Peak Hour Factor	0.92	0.93	0.93	0.93
Heavy Vehicles, %	2	0	0	0
Mvmt Flow	0	4	383	5
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	11.3
HCM LOS	B



CITY OF EDGEWOOD
REQUEST FOR COUNCIL ACTION
Agenda Bill No.: 18-0404

Date Action Requested: May 8, 2018

Title: Establishing All-Way Stop at 36th Street East and 122nd Avenue East

Attachments: Memo: *Evaluation of All-Way Stops at 122nd Ave E/36th Street E and Chrisella Rd E/48th Street E Intersections*
Resolution No. 18-0404

Submitted By: Jeremy Metzler, PE – Public Works Director

Approved For Agenda By: Daryl Eiding, Mayor

Prepared For Agenda By: Jeremy Metzler, PE – Public Works Director

Recommendation: Adopt the attached resolution, directing Staff to install all-way stop control at the intersection of 36th Street East and 122nd Avenue East.

Discussion: Increased traffic volumes and speeds have been a topic of concern and discussion with the City Council, recently resulting in the reduction of arterial speed limits throughout the City with the adoption of Ordinance 18-0519. The intersection of 36th Street East and 122nd Avenue East has been one of three intersections under consideration for all-way stop control. The City's Traffic Engineering Consultant, Transpo Group, reviewed this intersection last month and was unable to find engineering justification for establishing all-way stop at this location.

Regardless of the analysis results, the City Council has the authority to establish stop control at "any particular intersection" per RCW 46.61.200. Considering Council's immediate concerns, how additional traffic control measures will serve to help protect the public's health and safety, the presence of a marked crosswalk at this intersection, and immediate ability to implement a low-cost solution, Staff supports installing all-way stop control for this intersection at this time.

Alternatives: 1) Do not adopt. 2) Forward to Study Session for further review.

Fiscal Impact: Implementation of this resolution will result in four new permanent signs, three temporary warning signs, and two new stop bars, for a total estimated cost of approximately \$1,500.

MEMORANDUM

Date:	April 12, 2018	TG:	17286.00
To:	Jeremy Metzler, P.E. – City of Edgewood		
From:	Jon Pascal, P.E., PTOE – Transpo Group		
Subject:	Evaluation of All-Way Stops at 122nd Ave E/36th Street E and Chrisella Rd E/ 48th Street E Intersections		

The City of Edgewood has requested an analysis at the intersections of 122nd Avenue E / 36th Street E and Chrisella Road E / 48th Street E to determine if stop control at the 36th Street E and 48th Street E approaches are warranted. To complete this analysis, five-year collision data was collected from the Washington Department of Transportation (WSDOT) as well as traffic volume and speed data at each of the intersections and each approach leg. This memorandum summarizes the data and analysis, and provides direction on whether the City should consider multi-way stops at the intersection locations.

Summary of Findings

Based on a review of the Manual on Uniform Traffic Control Devices (MUTCD) **multi-way stop control is not recommended at 122nd Avenue E/36th Street E but may be warranted at Chrisella Road E/48th Street E.**

Criteria that support this conclusion include:

122nd Avenue E & 36th Street E:

- This intersection is not a high-risk collision location, with only 1 collision occurring in the past 5 years.
- While 122nd Avenue E saw high volumes of traffic during the PM peak hour, the corresponding traffic volumes on 36th Street E were low and traffic delay on all approaches was low.
- Traffic and collision analyses indicate that implementation of stop control is not warranted to control pedestrian/vehicle conflicts on any of the approaches.
- Sight distance (both entering and stopping) was determined to be adequate on all legs of the 122nd Avenue E / 36th Street E.
- Traffic operations are not significantly improved with AWSC.

Chrisella Road E & 48th Street E:

- This intersection is not a high-risk collision location, with only 2 collisions occurring in the past 5 years.
- While traffic volumes were high on Chrisella Road E, the volumes were not above the recommended threshold along 48th Street E for enough hours throughout the day to warrant the addition of stop signs along Chrisella Road E.
- Traffic and collision analyses indicate that implementation of stop control is not warranted to control pedestrian/vehicle conflicts on any of the approaches.
- Sight distance (both entering and stopping) is inadequate on the north and south legs and may warrant the installation of stop control along Chrisella Road E.

- The addition of AWSC improves the intersection operations from LOS E to LOS C in the PM peak condition, suggesting that AWSC may be warranted.

Study Area Description

The study focused on the intersections of 122nd Avenue E / 36th Street E and Chrisella Road E / 48th Street E. Stop control currently exists along 36th Street E and 48th Street E, the minor approaches at each intersection, while the major streets (122nd Avenue and Chrisella Road) are free. A general description of each roadway is provided below.

122nd Street E – 122nd Street E is a two-lane minor arterial roadway with a posted speed limit of 35 mph. This street provides a connection between 48th Street to the south and 8th Street to the north. There are no on-street parking spaces or sidewalks on either approach of the roadway.

36th Street E – 36th Street E is a two-lane collector roadway with a posted speed limit of 25 mph. This street provides a connection to State Route 161 to the west. There is a paved path on the north side of 36th Street E, between 122nd Avenue and 110th Avenue. There are no bicycle lanes along 36th Street, and no on-street parking.

Chrisella Road E – Chrisella Road E is a two-lane collector roadway with a posted speed limit of 25 mph. This street runs parallel to State Route 161 and provides a connection between 36th Street E and 48th Street E and continues farther south into the City of Puyallup. There are no bicycle lanes, sidewalks or on-street parking spaces provided along Chrisella Road E.

48th Street E – 48th Street E is a two-lane collector roadway with a posted speed limit of 25 mph. This street provides an east-west connection along the south edge of the City, between Chrisella Road E and 122nd Avenue E. There are no bicycle lanes, sidewalks or on-street parking spaces provided along 48th Street E.

Data Collection

Traffic volume and speed data were collected at all approaches to both study intersections. The data was collected for three consecutive days (March 6th to 8th). The detailed traffic counts and speed observations are provided in Attachment 1.

Multi-way Stop Analysis Evaluation Criteria

The Manual on Uniform Traffic Control Devices (MUTCD) was used as a guide to this analysis. As described in the MUTCD, the decision to implement multi-way stop control should be based on an engineering study at locations where the volume of traffic is approximately equal at each approach.

The MUTCD provides criteria that “should” or “may” be considered for multi-way stop application. The difference between “should” and “may” language in the MUTCD is that “should” suggests that multi-way stop be installed if criteria is met. The word “may” provides more justification for a City or agency to install multi-way stop control if the criteria are met. The criteria used to evaluate the installation of a multi-way stop are based on vehicle volumes, vehicles speeds, number of collisions, and vehicle speeds at the study intersection.

The following sections detail the AWSC evaluations performed at the intersections of 122nd Avenue E / 36th Street E and Chrisella Road E / 48th Street E to determine if multi-way stop control is warranted based on existing observations.

122nd Avenue E / 36th Street E AWSC Evaluation

Criteria identified in the MUTCD that is relevant to the multi-way stop application at the intersection of 122nd Avenue E / 36th Street E are described below. For ease of understanding, the criteria have been separated to distinguish whether multi-way stop control “should” or “may” be installed.

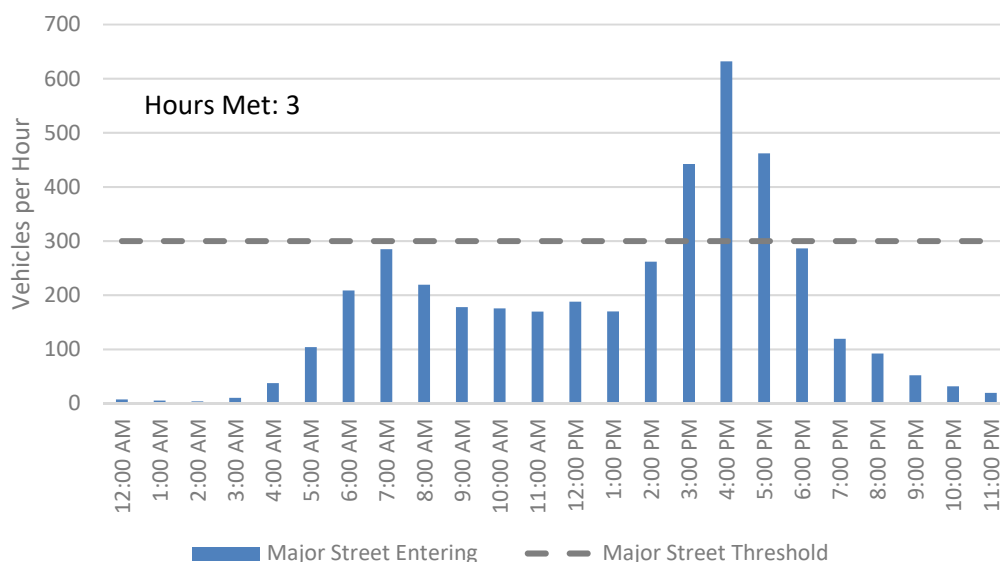
Criteria that “should” be considered:

1. The MUTCD uses safety and collisions as one indicator to designate whether further intersection control is warranted at an intersection. Intersections with a potential crash problem are those identified by 5 or more reported crashes in a 12-month period. As mentioned previously, collisions at the intersection were collected from WSDOT.
An analysis of this collision data indicates that the greatest number of collisions in a 12-month period at the intersection was 1. Therefore, no adjustment to alleviate collisions is warranted.
2. The MUTCD suggests vehicular volumes traveling along the major street (122nd Avenue E) to average at least 300 vehicles per hour for any 8 hours during a typical weekday, AND vehicles traveling along the minor street (36th Street E) should average at least 200 vehicles per hour for the same 8 hours as an indicator as whether or not further traffic control is warranted.

According to the MUTCD, volume thresholds may be reduced by 30 percent if the 85th percentile speed of the major street approaches exceed 40 mph. A review of the speed data at the intersection shows that the 85th percentile speed on 122nd Avenue E is approximately 34 mph. Therefore, a speed adjustment on the traffic threshold is not warranted at either intersection, and the vehicle volumes that should be met are 300 vehicles per hour on the major street and 200 vehicles per hour on the minor street for any 8 hours during a typical weekday.

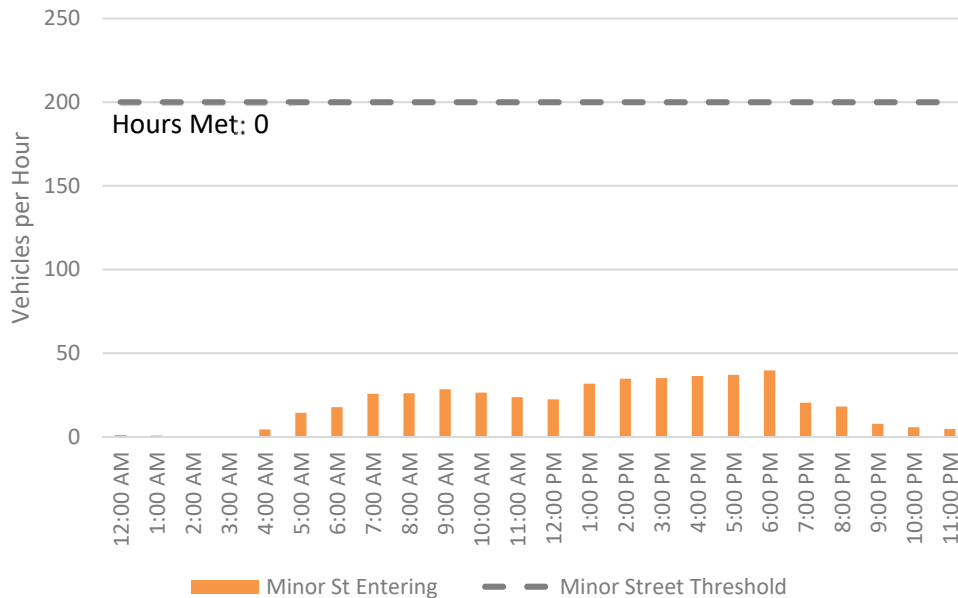
Figure 1 & Figure 2 illustrates the results of the intersection approach volumes at 122nd Avenue E and 36th Street E.

Figure 1 - 122nd Avenue E - Major Street Approach Volumes



As shown in Figure 1, the vehicle volumes on the major approach (122nd Avenue E) exceed the threshold (300) for three hours of the day (3, 4 and 5 pm) which is below the 8-hour threshold in the MUTCD. Minor street traffic volumes approaching the intersection on 36th Street E are summarized in Figure 2. Minor street approach volumes remain low throughout the day, well below the 200 vehicles per hour threshold in the MUTCD. As a result, these criteria are not met for installation of an all-way stop.

Figure 2 - 36th Street E - Minor Street Approach



- Another indicator addressed in the MUTCD is total delay at the intersection for vehicular traffic along the minor street. If the average delay per vehicle on the minor roadway is at least 30 seconds per vehicle during peak hour traffic, further traffic control may be warranted **if the minimum vehicle thresholds are also met**. While the minimum vehicle thresholds are not met for the intersection, traffic operations were still analyzed to understand how the intersection operates during the peak hours. Traffic operations were analyzed using Synchro version 9 software, which is consistent with the latest *Highway Capacity Manual* (HCM) methodology. The operations results are summarized in Table 1.

Table 1. 122nd Avenue E / 36th Street E Intersection Operations

Intersection	Control	2018 Existing (TWSC)			2018 AWSC	
		LOS ¹	Delay ²	WM ⁴	LOS	Delay
<u>Weekday AM Peak Hour</u>						
122nd Ave E/36th Street E	TWSC	B	10	EBL	A	8
<u>Weekday PM Peak Hour</u>						
122nd Ave E/36th Street E	TWSC	B	13	EBL	B	10

1. Level of service, based on 2010 Highway Capacity Manual methodology.

2. Average delay in seconds per vehicle.

3. Worst movement reported for unsignalized intersections.

Operations at 122nd Avenue E / 36th Street E intersection are LOS B for both the AM and PM peak hour, with average delays of 14 and 13 seconds per vehicle for the minor approach (36th Street E) which indicates that the intersection is operating well.

Analysis summarizing operations if all-way stop control (AWSC) was installed at each intersection was also completed and summarized in Table 1. AWSC LOS is reported based on average vehicle delay from all approaches, where two-way stop control (TWSC) reports the average delay for the worst movement.

AWSC operations are expected to slightly improve overall LOS, but would result in an increase in total vehicle delay due to all vehicles being required to stop on the major roadway.

Criteria that “may” be considered:

1. The need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes.

In the counts that were collected, no major pedestrian activity was recorded at the 122nd Avenue E / 36th Street E intersection during the peak hours. In addition, the WSDOT data for collisions over the last 5 years demonstrated that no vehicle/pedestrian conflicts occurred at the intersection. Therefore, no adjustment is warranted to alleviate vehicle/pedestrian conflicts.

2. Locations where a road user, after stopping, cannot see conflicting traffic and is not able to negotiate the intersection unless conflicting cross traffic is also required to stop.

A visual inspection of the 122nd Avenue E / 36th Street E intersection indicates that no such visual barriers exist. Therefore, no adjustment is warranted to alleviate visual barrier conflicts at the intersection. Sight Distance figures can be seen in Attachment 2.

3. An intersection of two residential neighborhood collector streets of similar design and operating characteristics where multi-way stop control would improve traffic operational characteristics of the intersection.

A review of the roadway classifications from Edgewood’s Comprehensive Plan reveals that 122nd Avenue is classified as a minor arterial, while 36th Street E is classified as a collector. In addition, the operating characteristics of the two roadways are not similar, as 122nd Street E carries much higher levels of traffic than 36th Street E. Therefore, no adjustment is warranted to improve traffic operational characteristics of the intersection.

4. The need to control left-turn conflicts.

A review of the WSDOT collision data revealed that there was one left-turn collision in the last five years at the intersection, which was the only collision during the five-year period. No left-turn conflict exists that would warrant the installation of all way stop control.

Based on the criteria identified in the MUTCD, the installation of multi-way stop control at the intersection of 122nd Avenue E & 36th Street E is not warranted.

Chrisella Road E / 48th Street E AWSC Evaluation

Criteria identified in the MUTCD that is relevant to the multi-way stop application at the intersections of Chrisella Road E / 48th Street E intersection are described below. For ease of understanding, the criteria have been separated to distinguish whether multi-way stop control “should” or “may” be installed.



Criteria that “should” be considered:

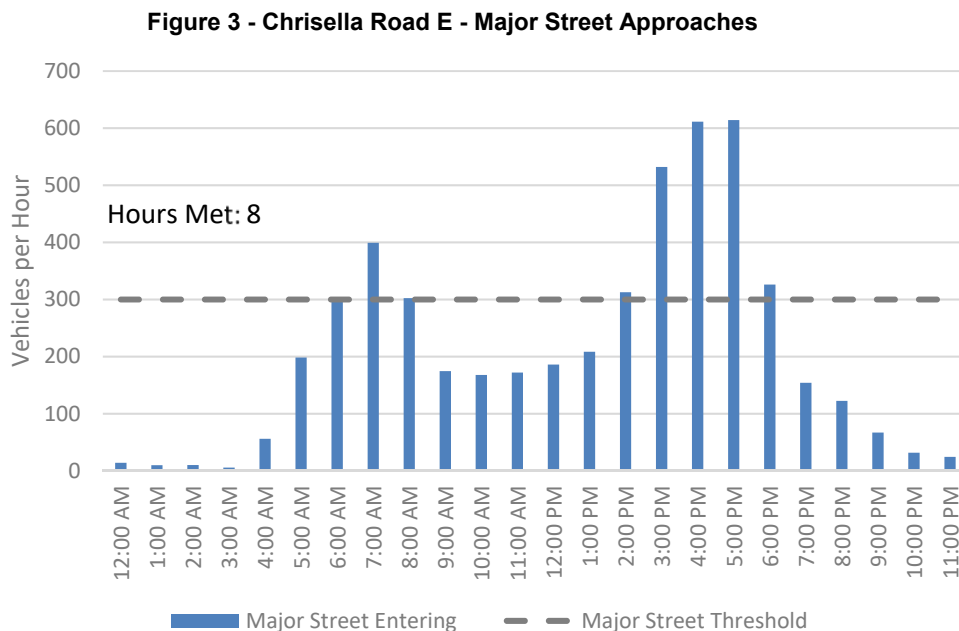
1. The MUTCD uses safety and collisions as one indicator to designate whether further intersection control is warranted at an intersection. Intersections with a potential crash problem are those identified by 5 or more reported crashes in a 12-month period. As mentioned previously, collisions at the intersection were collected from WSDOT.

An analysis of this collision data indicates that the greatest number of collisions in a 12-month period at the intersection was 1. Therefore, no adjustment to alleviate collisions is warranted.

2. The MUTCD suggests vehicular volumes traveling along the major street (Chrisella Road E) to average at least 300 vehicles per hour for any 8 hours during a typical weekday, AND vehicles traveling along the minor street (48th Street E) should average at least 200 vehicles per hour for the same 8 hours as an indicator as whether or not further traffic control is warranted.

According to the MUTCD, volume thresholds may be reduced by 30 percent if the 85th percentile speed of the major street approaches exceeds 40 mph. A review of the speed data at the intersection shows that the 85th percentile speed on Chrisella Road E is approximately 39.5 mph. Therefore, a speed adjustment on the traffic threshold is not warranted at either intersection, and the vehicle volumes that should be met are 300 vehicles per hour on the major street and 200 vehicles per hour on the minor street for any 8 hours during a typical weekday.

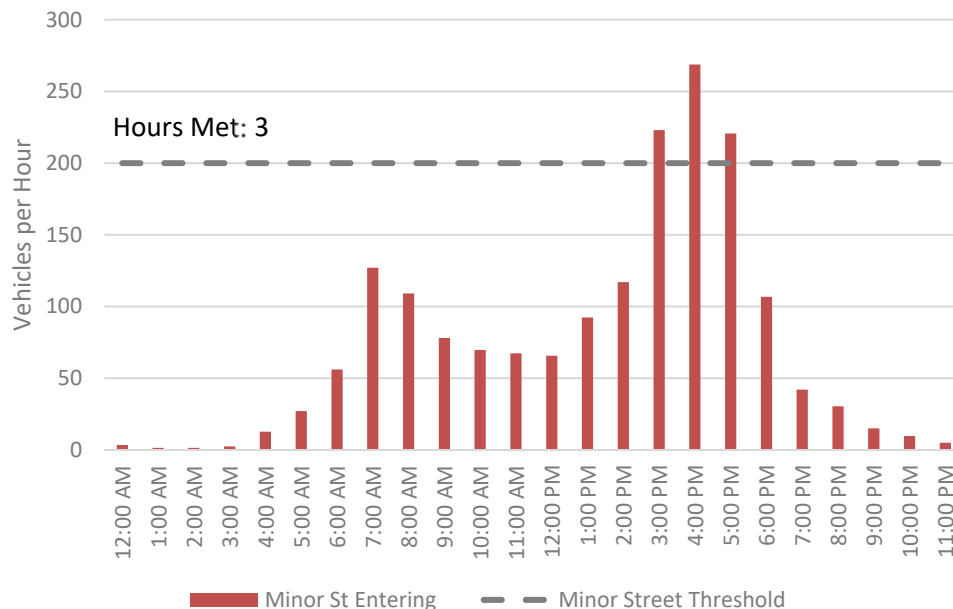
Figure 3 and Figure 4 summarize the results of the intersection approach volumes at Chrisella Road E and 48th Street E.



Major street approach volumes on Chrisella Road E exceed the 300 vehicles per hour threshold for 8 hours of the day on an average weekday. On the minor street approach, traffic volumes exceed the 200 vehicles per hour threshold for 3 hours of the day on an average weekday. While the warrant is met for the major street volumes, the minor street

minimum approach volumes are not met for enough hours during the day to meet the identified threshold for all-way stop control.

Figure 4 - 48th Street E - Minor Street Approach



- Another indicator addressed in the MUTCD is total delay at the intersection for vehicular traffic along the minor street. If the average delay per vehicle on the minor roadway is at least 30 seconds per vehicle during peak hour traffic, further traffic control may be warranted **if the minimum vehicle thresholds are also met**. While the minimum vehicle thresholds are not met for the intersection, traffic operations were still analyzed to understand how the intersection operates during the peak hours. Traffic operations were analyzed using Synchro version 9 software, which is consistent with the latest *Highway Capacity Manual* (HCM) methodology. The operations results are summarized in Table 2.

Table 2. Chrisella Road E / 48th Street E Intersection Operations

Intersection	Control	2018 Existing (TWSC)			2018 AWSC	
		LOS ¹	Delay ²	WM ⁴	LOS	Delay
<u>Weekday AM Peak Hour</u>						
Chrisella Rd E/48th Street E	TWSC	B	14	WBL	B	10
<u>Weekday PM Peak Hour</u>						
Chrisella Rd E/48th Street E	TWSC	E	41	WBL	C	17

4. Level of service, based on 2010 Highway Capacity Manual methodology.

5. Average delay in seconds per vehicle.

6. Worst movement reported for unsignalized intersections.

Operations at Chrisella Road E / 48th Street E intersection are LOS B during the AM peak hour with an average side street delay of 10 seconds per vehicle. During the PM peak hour, average side street delay is 41 seconds per vehicle which results in LOS E. This exceeds the LOS standard set forth in the City of Edgewood's Comprehensive Plan of

LOS D for all intersections (apart from intersections along Meridian Avenue where the LOS standard is E).

Installation of AWSC would improve intersection operations to LOS C during the PM peak hour, within the City's LOS standards.

Criteria that “may” be considered:

1. The need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes.

In the counts that were collected, no major pedestrian activity was recorded at the Chrisella Road E / 48th Street intersection during the peak hours. In addition, the WSDOT data for collisions over the last 5 years demonstrated that no vehicle/pedestrian conflicts occurred at the intersection. Therefore, no adjustment is warranted to alleviate vehicle/pedestrian conflicts.

2. Locations where a road user, after stopping, cannot see conflicting traffic and is not able to negotiate the intersection unless conflicting cross traffic is also required to stop.

An analysis of stopping and entering sight distance indicates that there are significant sight distance issues at the intersection. Pierce County design standards, which the City has adopted, require 390 feet of sight distance for a left turn from stop, and 250 feet of stopping sight distance. Both distances are not met for both northbound and southbound traffic, with sight distances on the southbound approach being particularly low as shown in Attachment 2. Poor sight distance could be used as a justification for installation of all-way stop control at the intersection. If the City decides to install AWSC, stop sign ahead signs should be installed on the north and south approaches to indicate to drivers that they will be required to stop ahead as the intersection lacks adequate stopping distance.

3. An intersection of two residential neighborhood collector streets of similar design and operating characteristics where multi-way stop control would improve traffic operational characteristics of the intersection.

A review of the roadway classifications from Edgewood's Comprehensive Plan reveals that both Chrisella Road and 48th Street are classified as collectors. While Chrisella Road E carries much higher levels of traffic than 48th Street E during the peak hours, much of the additional traffic is cut-through traffic that is bypassing the congestion along SR 161. As a result, the operating characteristics of the two roadways are similar when evaluating just the off-peak hours, when the regional cut-through traffic is not present. Therefore, an adjustment is warranted to improve traffic operational characteristics of the intersection over the course of a day.

4. The need to control left-turn conflicts.

A review of the WSDOT collision data revealed that there were no left-turn collisions in the last five years at the intersection of Chrisella Road E / 48th Street E. As such, AWSC installation is not warranted on the basis of left-turn conflicts.

Based on the criteria identified in the MUTCD, the installation of multi-way stop control at the intersection of Chrisella Road E / 48th Street E may be warranted.

Implementation

Should the City decide that they would like to implement an all-way stop control at either intersection, either now or in the future, the following guidelines provide information to aid the implementation process.

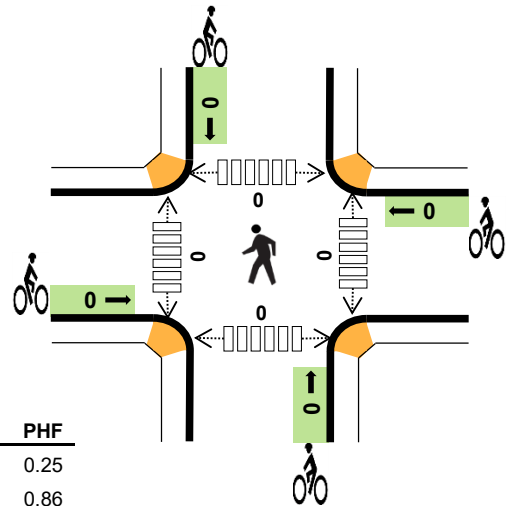
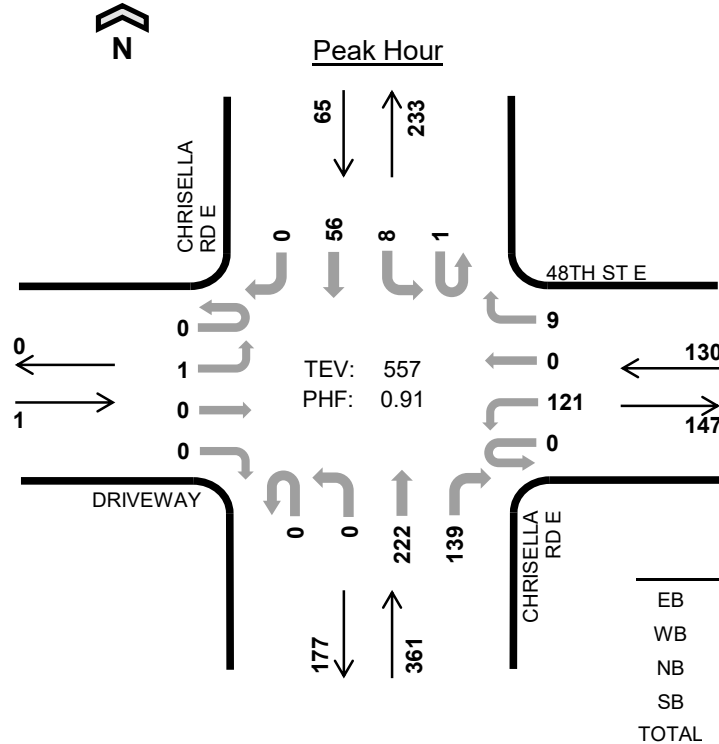


- Stop sign (R1-1) **shall** be used on each approach.
- An ALL WAY supplemental plaque (R1-3P) **shall** be mounted below each stop sign.
- Stop lines **may** be used to indicate the point behind which vehicles are required to stop.
We would recommend placement of stop bars to help reinforce the stop signs.
- We would also recommend that a sign indicating that a stop sign is ahead (W3-1) be installed on each approach along the main approaches. The signs should be accompanied by two flags attached to the top of the sign in a diagonal direction to better highlight the sign. The signs could then be taken down after a minimum period of 6 months, if the City so chooses, but should likely remain along Chrisella Road E indefinitely due to the documented sight distance issues.

ATTACHMENT 1 – TRAFFIC DATA



Peak Hour: 7:00 AM to 8:00 AM

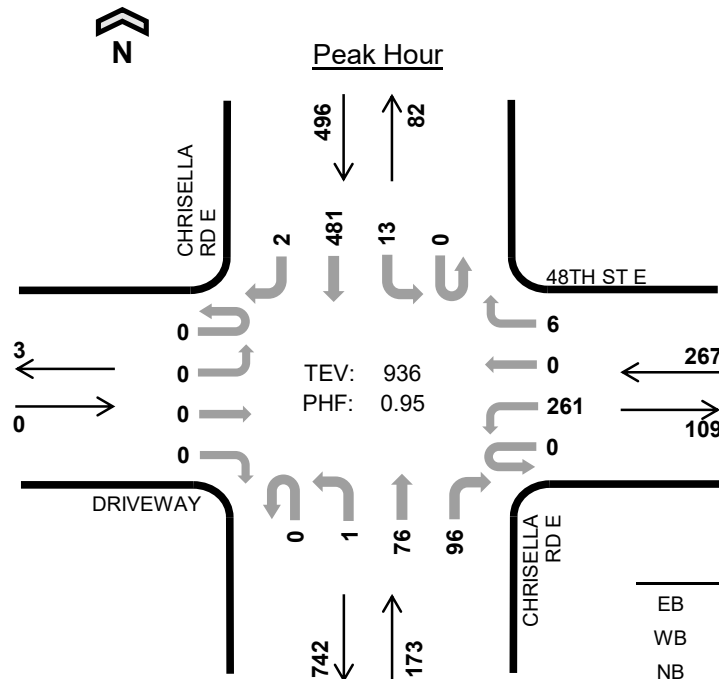


	HV %:	PHF
EB	0.0%	0.25
WB	2.3%	0.86
NB	1.1%	0.87
SB	3.1%	0.74
TOTAL	1.6%	0.91

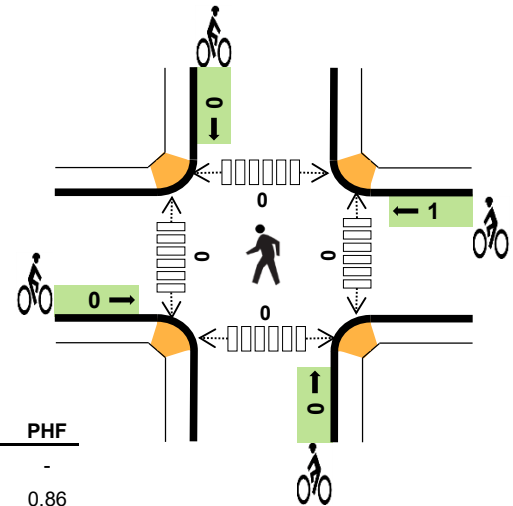
Interval Start	DRIVEWAY				48TH ST E				CHRISELLA RD E				CHRISELLA RD E				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	24	0	3	0	0	59	45	0	1	12	0	144	0
7:15 AM	0	0	0	0	0	38	0	0	0	0	50	33	0	2	13	0	136	0
7:30 AM	0	0	0	0	0	28	0	3	0	0	47	24	1	3	18	0	124	0
7:45 AM	0	1	0	0	0	31	0	3	0	0	66	37	0	2	13	0	153	557
8:00 AM	0	0	0	0	0	31	0	1	0	0	51	15	0	3	16	0	117	530
8:15 AM	0	0	0	0	0	18	0	1	0	0	30	31	0	2	20	0	102	496
8:30 AM	0	0	0	0	0	25	0	3	0	0	35	20	0	1	23	0	107	479
8:45 AM	0	0	0	0	0	30	0	4	0	0	38	20	0	6	25	0	123	449
Count Total	0	1	0	0	0	225	0	18	0	0	376	225	1	20	140	0	1,006	0
Peak Hour	0	1	0	0	0	121	0	9	0	0	222	139	1	8	56	0	557	0

[illegible]

CHRISELLA RD E 48TH ST E



Date: Tue, Mar 06, 2018
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM



	HV %:	PHF
EB	-	-
WB	1.1%	0.86
NB	0.6%	0.83
SB	1.4%	0.89
TOTAL	1.2%	0.95

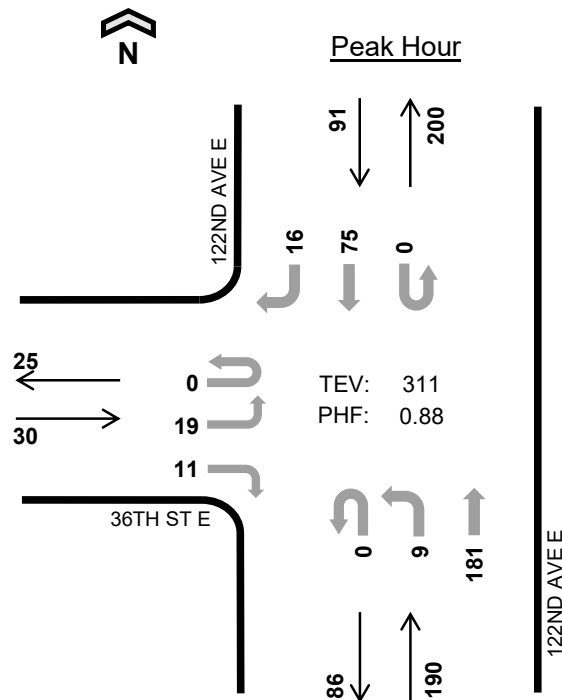
Two-Hour Count Summaries

Interval Start	DRIVEWAY				48TH ST E				CHRISELLA RD E				CHRISELLA RD E				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	77	0	1	0	1	14	17	0	1	115	1	227	0
4:15 PM	0	0	0	0	0	65	0	2	0	0	16	24	0	4	134	1	246	0
4:30 PM	0	0	0	0	0	59	0	0	0	0	21	28	0	2	121	0	231	0
4:45 PM	0	0	0	0	0	60	0	3	0	0	25	27	0	6	111	0	232	936
5:00 PM	0	0	0	0	0	53	0	2	0	0	14	13	0	6	106	0	194	903
5:15 PM	0	0	0	0	0	60	2	5	0	0	25	27	0	2	123	0	244	901
5:30 PM	0	0	0	0	0	60	0	4	0	0	24	13	0	2	115	0	218	888
5:45 PM	0	0	0	0	0	43	0	3	0	0	20	17	0	2	106	0	191	847
Count Total	0	0	0	0	0	477	2	20	0	1	159	166	0	25	931	2	1,783	0
Peak Hour	0	0	0	0	0	261	0	6	0	1	76	96	0	13	481	2	936	0

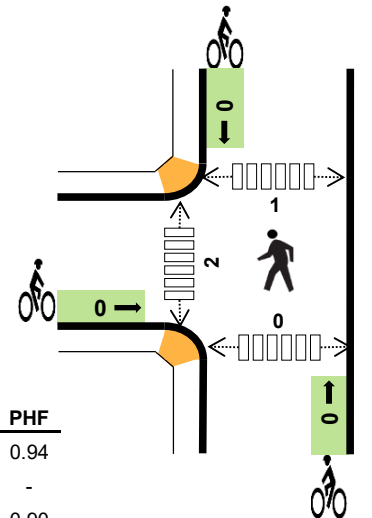
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	2	0	2	4	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	2	3	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	1	1	2	0	1	0	0	1	0	0	0	0	0
5:00 PM	0	0	0	2	2	0	0	0	0	0	0	0	2	0	2
5:15 PM	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	4	2	10	16	0	1	0	0	1	0	0	2	0	2
Peak Hour	0	3	1	7	11	0	1	0	0	1	0	0	0	0	0

122ND AVE E 36TH ST E



Date: Tue, Mar 06, 2018
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00 AM to 8:00 AM



	HV %:	PHF
EB	3.3%	0.94
WB	-	-
NB	1.1%	0.90
SB	3.3%	0.81
TOTAL	1.9%	0.88

Two-Hour Count Summaries

Interval Start	36TH ST E				0				122ND AVE E				122ND AVE E				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	6	0	2	0	0	0	0	0	0	47	0	0	0	15	4	74	0
7:15 AM	0	4	0	4	0	0	0	0	0	4	40	0	0	0	23	4	79	0
7:30 AM	0	4	0	3	0	0	0	0	0	3	50	0	0	0	24	4	88	0
7:45 AM	0	5	0	2	0	0	0	0	0	2	44	0	0	0	13	4	70	311
8:00 AM	0	2	0	4	0	0	0	0	0	4	34	0	0	0	13	3	60	297
8:15 AM	0	4	0	1	0	0	0	0	0	0	34	0	0	0	17	1	57	275
8:30 AM	0	1	0	2	0	0	0	0	0	1	34	0	0	0	22	1	61	248
8:45 AM	0	2	0	4	0	0	0	0	0	1	28	0	0	0	19	4	58	236
Count Total	0	28	0	22	0	0	0	0	0	15	311	0	0	0	146	25	547	0
Peak Hour	0	19	0	11	0	0	0	0	0	9	181	0	0	0	75	16	311	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

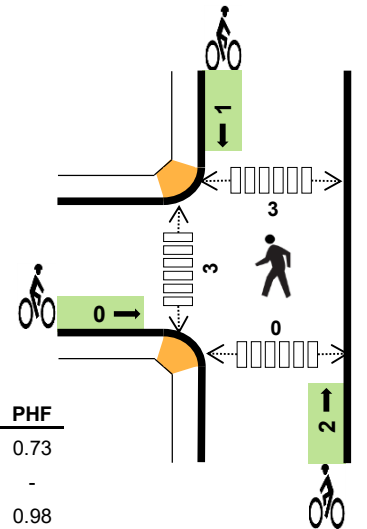
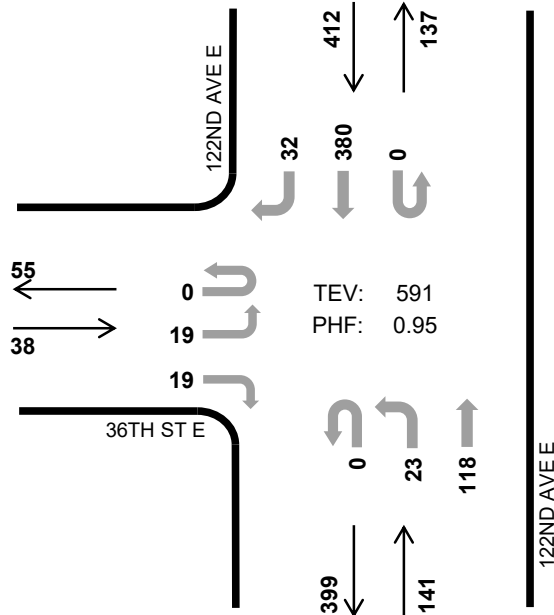
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	2	2	4	0	0	0	0	0	0	1	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:45 AM	0	0	0	1	1	0	0	0	0	0	0	0	1	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	1	0	1	2	4	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	2	0	3	5	10	0	0	0	0	0	0	2	1	0	3
Peak Hr	1	0	2	3	6	0	0	0	0	0	0	2	1	0	3

122ND AVE E 36TH ST E



Peak Hour

Date: Tue, Mar 06, 2018
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM



	HV %:	PHF
EB	2.6%	0.73
WB	-	-
NB	0.7%	0.98
SB	0.7%	0.90
TOTAL	0.8%	0.95

Two-Hour Count Summaries

Interval Start	36TH ST E				0				122ND AVE E				122ND AVE E				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	4	0	9	0	0	0	0	0	6	30	0	0	0	92	3	144	0
4:15 PM	0	2	0	4	0	0	0	0	0	4	32	0	0	0	100	14	156	0
4:30 PM	0	5	0	2	0	0	0	0	0	7	28	0	0	0	105	6	153	0
4:45 PM	0	8	0	4	0	0	0	0	0	6	28	0	0	0	83	9	138	591
5:00 PM	0	6	0	5	0	0	0	0	0	2	33	0	0	0	78	11	135	582
5:15 PM	0	3	0	4	0	0	0	0	0	3	27	0	0	0	92	5	134	560
5:30 PM	0	3	0	3	0	0	0	0	0	2	27	0	0	0	85	8	128	535
5:45 PM	0	7	0	4	0	0	0	0	0	1	30	0	0	0	64	4	110	507
Count Total	0	38	0	35	0	0	0	0	0	31	235	0	0	0	699	60	1,098	0
Peak Hour	0	19	0	19	0	0	0	0	0	23	118	0	0	0	380	32	591	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	1	0	1	0	1	1	0	2
4:45 PM	1	0	0	0	1	0	0	1	1	2	0	2	2	0	4
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
Count Total	2	0	1	4	7	0	0	2	1	3	0	3	5	0	8
Peak Hr	1	0	1	3	5	0	0	2	1	3	0	3	3	0	6

Location: CHRISELLA RD E N/O 48TH ST E
 Date Range: 3/6/2018 - 3/12/2018
 Site Code: 01

Time	Tuesday			Wednesday			Thursday			Friday			Saturday			Sunday			Monday			Mid-Week Average		
	3/6/2018			3/7/2018			3/8/2018			3/9/2018			3/10/2018			3/11/2018			3/12/2018					
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total
12:00 AM	5	5	10	1	5	6	1	4	5	-	-	-	-	-	-	-	-	-	-	-	-	2	5	7
1:00 AM	5	6	11	2	3	5	3	5	8	-	-	-	-	-	-	-	-	-	-	-	-	3	5	8
2:00 AM	5	5	10	7	2	9	4	5	9	-	-	-	-	-	-	-	-	-	-	-	-	5	4	9
3:00 AM	4	1	5	6	2	8	7	2	9	-	-	-	-	-	-	-	-	-	-	-	-	6	2	7
4:00 AM	44	9	53	49	9	58	50	3	53	-	-	-	-	-	-	-	-	-	-	-	-	48	7	55
5:00 AM	144	12	156	162	10	172	155	13	168	-	-	-	-	-	-	-	-	-	-	-	-	154	12	165
6:00 AM	177	30	207	171	32	203	165	33	198	-	-	-	-	-	-	-	-	-	-	-	-	171	32	203
7:00 AM	228	60	288	225	57	282	211	50	261	-	-	-	-	-	-	-	-	-	-	-	-	221	56	277
8:00 AM	161	86	247	144	62	206	159	61	220	-	-	-	-	-	-	-	-	-	-	-	-	155	70	224
9:00 AM	76	58	134	80	48	128	85	41	126	-	-	-	-	-	-	-	-	-	-	-	-	80	49	129
10:00 AM	64	57	121	64	52	116	96	55	151	-	-	-	-	-	-	-	-	-	-	-	-	75	55	129
11:00 AM	75	75	150	64	54	118	83	51	134	-	-	-	-	-	-	-	-	-	-	-	-	74	60	134
12:00 PM	75	43	118	55	72	127	61	75	136	-	-	-	-	-	-	-	-	-	-	-	-	64	63	127
1:00 PM	68	90	158	72	77	149	67	80	147	-	-	-	-	-	-	-	-	-	-	-	-	69	82	151
2:00 PM	71	165	236	63	153	216	81	159	240	-	-	-	-	-	-	-	-	-	-	-	-	72	159	231
3:00 PM	101	359	460	77	351	428	70	347	417	-	-	-	-	-	-	-	-	-	-	-	-	83	352	435
4:00 PM	85	495	580	78	463	541	95	432	527	-	-	-	-	-	-	-	-	-	-	-	-	86	463	549
5:00 PM	91	459	550	100	429	529	75	471	546	-	-	-	-	-	-	-	-	-	-	-	-	89	453	542
6:00 PM	44	267	311	39	169	208	63	199	262	-	-	-	-	-	-	-	-	-	-	-	-	49	212	260
7:00 PM	39	67	106	34	61	95	35	73	108	-	-	-	-	-	-	-	-	-	-	-	-	36	67	103
8:00 PM	31	34	65	32	43	75	25	40	65	-	-	-	-	-	-	-	-	-	-	-	-	29	39	68
9:00 PM	17	25	42	21	11	32	16	24	40	-	-	-	-	-	-	-	-	-	-	-	-	18	20	38
10:00 PM	10	11	21	8	13	21	11	17	28	-	-	-	-	-	-	-	-	-	-	-	-	10	14	23
11:00 PM	9	14	23	4	13	17	3	8	11	-	-	-	-	-	-	-	-	-	-	-	-	5	12	17
Total	1,629	2,433	4,062	1,558	2,191	3,749	1,621	2,248	3,869	-	-	-	-	-	-	-	-	-	-	-	-	1,603	2,291	3,893
Percent	40%	60%	-	42%	58%	-	42%	58%	-	-	-	-	-	-	-	-	-	-	-	-	-	41%	59%	-

1. Mid-week average includes data between Tuesday and Thursday.

Location: CHRISELLA RD E S/O 48TH ST E
 Date Range: 3/6/2018 - 3/12/2018
 Site Code: 02

Time	Tuesday			Wednesday			Thursday			Friday			Saturday			Sunday			Monday			Mid-Week Average		
	3/6/2018			3/7/2018			3/8/2018			3/9/2018			3/10/2018			3/11/2018			3/12/2018					
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total
12:00 AM	10	5	15	6	5	11	12	9	21	-	-	-	-	-	-	-	-	-	-	-	-	9	6	16
1:00 AM	5	5	10	6	5	11	4	5	9	-	-	-	-	-	-	-	-	-	-	-	-	5	5	10
2:00 AM	6	6	12	7	2	9	5	6	11	-	-	-	-	-	-	-	-	-	-	-	-	6	5	11
3:00 AM	4	2	6	3	4	7	5	3	8	-	-	-	-	-	-	-	-	-	-	-	-	4	3	7
4:00 AM	45	19	64	49	19	68	53	10	63	-	-	-	-	-	-	-	-	-	-	-	-	49	16	65
5:00 AM	179	30	209	197	37	234	184	34	218	-	-	-	-	-	-	-	-	-	-	-	-	187	34	220
6:00 AM	280	90	370	268	88	356	264	79	343	-	-	-	-	-	-	-	-	-	-	-	-	271	86	356
7:00 AM	361	179	540	354	183	537	316	168	484	-	-	-	-	-	-	-	-	-	-	-	-	344	177	520
8:00 AM	241	187	428	205	169	374	252	156	408	-	-	-	-	-	-	-	-	-	-	-	-	233	171	403
9:00 AM	131	127	258	124	118	242	122	104	226	-	-	-	-	-	-	-	-	-	-	-	-	126	116	242
10:00 AM	120	116	236	90	112	202	129	104	233	-	-	-	-	-	-	-	-	-	-	-	-	113	111	224
11:00 AM	101	135	236	109	107	216	126	105	231	-	-	-	-	-	-	-	-	-	-	-	-	112	116	228
12:00 PM	130	100	230	127	118	245	111	138	249	-	-	-	-	-	-	-	-	-	-	-	-	123	119	241
1:00 PM	135	163	298	124	139	263	119	142	261	-	-	-	-	-	-	-	-	-	-	-	-	126	148	274
2:00 PM	163	261	424	133	258	391	165	254	419	-	-	-	-	-	-	-	-	-	-	-	-	154	258	411
3:00 PM	182	580	762	183	545	728	174	546	720	-	-	-	-	-	-	-	-	-	-	-	-	180	557	737
4:00 PM	139	751	890	163	729	892	142	690	832	-	-	-	-	-	-	-	-	-	-	-	-	148	723	871
5:00 PM	142	675	817	179	604	783	162	669	831	-	-	-	-	-	-	-	-	-	-	-	-	161	649	810
6:00 PM	127	362	489	97	257	354	119	299	418	-	-	-	-	-	-	-	-	-	-	-	-	114	306	420
7:00 PM	90	103	193	90	84	174	81	95	176	-	-	-	-	-	-	-	-	-	-	-	-	87	94	181
8:00 PM	97	59	156	84	60	144	69	71	140	-	-	-	-	-	-	-	-	-	-	-	-	83	63	147
9:00 PM	47	27	74	47	24	71	47	30	77	-	-	-	-	-	-	-	-	-	-	-	-	47	27	74
10:00 PM	16	17	33	19	19	38	19	18	37	-	-	-	-	-	-	-	-	-	-	-	-	18	18	36
11:00 PM	15	14	29	11	11	22	12	14	26	-	-	-	-	-	-	-	-	-	-	-	-	13	13	26
Total	2,766	4,013	6,779	2,675	3,697	6,372	2,692	3,749	6,441	-	-	-	-	-	-	-	-	-	-	-	-	2,711	3,820	6,531
Percent	41%	59%	-	42%	58%	-	42%	58%	-	-	-	-	-	-	-	-	-	-	-	-	-	42%	58%	-

1. Mid-week average includes data between Tuesday and Thursday.

Location: 48TH ST E E/O CHRISSELLA RD E
 Date Range: 3/6/2018 - 3/12/2018
 Site Code: 03



Time	Tuesday			Wednesday			Thursday			Friday			Saturday			Sunday			Monday			Mid-Week Average		
	3/6/2018			3/7/2018			3/8/2018			3/9/2018			3/10/2018			3/11/2018			3/12/2018					
	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total
12:00 AM	8	4	12	5	1	6	10	5	15	-	-	-	-	-	-	-	-	-	-	-	-	8	3	11
1:00 AM	3	2	5	4	2	6	1	0	1	-	-	-	-	-	-	-	-	-	-	-	3	1	4	
2:00 AM	1	1	2	1	1	2	2	2	4	-	-	-	-	-	-	-	-	-	-	-	1	1	3	
3:00 AM	2	2	4	0	3	3	0	2	2	-	-	-	-	-	-	-	-	-	-	-	1	2	3	
4:00 AM	9	12	21	8	14	22	6	12	18	-	-	-	-	-	-	-	-	-	-	-	8	13	20	
5:00 AM	43	21	64	49	35	84	40	25	65	-	-	-	-	-	-	-	-	-	-	-	44	27	71	
6:00 AM	109	60	169	103	56	159	98	52	150	-	-	-	-	-	-	-	-	-	-	-	103	56	159	
7:00 AM	145	127	272	140	131	271	116	123	239	-	-	-	-	-	-	-	-	-	-	-	134	127	261	
8:00 AM	99	117	216	93	110	203	113	100	213	-	-	-	-	-	-	-	-	-	-	-	102	109	211	
9:00 AM	63	78	141	56	83	139	50	73	123	-	-	-	-	-	-	-	-	-	-	-	56	78	134	
10:00 AM	61	72	133	41	72	113	53	65	118	-	-	-	-	-	-	-	-	-	-	-	52	70	121	
11:00 AM	47	79	126	54	60	114	55	63	118	-	-	-	-	-	-	-	-	-	-	-	52	67	119	
12:00 PM	61	67	128	81	57	138	58	73	131	-	-	-	-	-	-	-	-	-	-	-	67	66	132	
1:00 PM	87	100	187	77	90	167	67	87	154	-	-	-	-	-	-	-	-	-	-	-	77	92	169	
2:00 PM	110	108	218	90	128	218	98	115	213	-	-	-	-	-	-	-	-	-	-	-	99	117	216	
3:00 PM	97	241	338	102	207	309	108	221	329	-	-	-	-	-	-	-	-	-	-	-	102	223	325	
4:00 PM	105	261	366	101	270	371	78	275	353	-	-	-	-	-	-	-	-	-	-	-	95	269	363	
5:00 PM	84	231	315	92	209	301	110	222	332	-	-	-	-	-	-	-	-	-	-	-	95	221	316	
6:00 PM	93	112	205	72	101	173	82	107	189	-	-	-	-	-	-	-	-	-	-	-	82	107	189	
7:00 PM	65	49	114	71	41	112	62	36	98	-	-	-	-	-	-	-	-	-	-	-	66	42	108	
8:00 PM	75	29	104	58	25	83	50	37	87	-	-	-	-	-	-	-	-	-	-	-	61	30	91	
9:00 PM	36	12	48	33	18	51	40	15	55	-	-	-	-	-	-	-	-	-	-	-	36	15	51	
10:00 PM	8	9	17	14	10	24	15	10	25	-	-	-	-	-	-	-	-	-	-	-	12	10	22	
11:00 PM	10	3	13	14	7	21	11	5	16	-	-	-	-	-	-	-	-	-	-	-	12	5	17	
Total	1,421	1,797	3,218	1,359	1,731	3,090	1,323	1,725	3,048	-	-	-	-	-	-	-	-	-	-	-	1,368	1,751	3,119	
Percent	44%	56%	-	44%	56%	-	43%	57%	-	-	-	-	-	-	-	-	-	-	-	-	44%	56%	-	

1. Mid-week average includes data between Tuesday and Thursday.

Location: 122ND AVE E BTWN 35TH ST E & 34TH ST CT E
 Date Range: 3/6/2018 - 3/12/2018
 Site Code: 04

Time	Tuesday			Wednesday			Thursday			Friday			Saturday			Sunday			Monday			Mid-Week Average		
	3/6/2018			3/7/2018			3/8/2018			3/9/2018			3/10/2018			3/11/2018			3/12/2018					
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total
12:00 AM	2	5	7	3	4	7	3	6	9	-	-	-	-	-	-	-	-	-	-	-	-	3	5	8
1:00 AM	1	2	3	1	5	6	1	6	7	-	-	-	-	-	-	-	-	-	-	-	-	1	4	5
2:00 AM	4	2	6	2	0	2	1	2	3	-	-	-	-	-	-	-	-	-	-	-	-	2	1	4
3:00 AM	8	4	12	7	3	10	7	2	9	-	-	-	-	-	-	-	-	-	-	-	-	7	3	10
4:00 AM	27	13	40	29	11	40	23	14	37	-	-	-	-	-	-	-	-	-	-	-	-	26	13	39
5:00 AM	95	19	114	99	23	122	88	18	106	-	-	-	-	-	-	-	-	-	-	-	-	94	20	114
6:00 AM	143	77	220	153	62	215	151	61	212	-	-	-	-	-	-	-	-	-	-	-	-	149	67	216
7:00 AM	204	86	290	202	99	301	196	105	301	-	-	-	-	-	-	-	-	-	-	-	-	201	97	297
8:00 AM	142	84	226	122	85	207	156	83	239	-	-	-	-	-	-	-	-	-	-	-	-	140	84	224
9:00 AM	107	80	187	88	93	181	98	86	184	-	-	-	-	-	-	-	-	-	-	-	-	98	86	184
10:00 AM	95	102	197	89	77	166	91	92	183	-	-	-	-	-	-	-	-	-	-	-	-	92	90	182
11:00 AM	101	75	176	71	97	168	91	91	182	-	-	-	-	-	-	-	-	-	-	-	-	88	88	175
12:00 PM	106	104	210	102	96	198	115	95	210	-	-	-	-	-	-	-	-	-	-	-	-	108	98	206
1:00 PM	93	93	186	66	95	161	104	94	198	-	-	-	-	-	-	-	-	-	-	-	-	88	94	182
2:00 PM	102	174	276	108	153	261	99	161	260	-	-	-	-	-	-	-	-	-	-	-	-	103	163	266
3:00 PM	132	322	454	135	295	430	124	330	454	-	-	-	-	-	-	-	-	-	-	-	-	130	316	446
4:00 PM	152	413	565	130	391	521	279	573	852	-	-	-	-	-	-	-	-	-	-	-	-	187	459	646
5:00 PM	152	346	498	126	313	439	164	318	482	-	-	-	-	-	-	-	-	-	-	-	-	147	326	473
6:00 PM	92	179	271	109	182	291	137	189	326	-	-	-	-	-	-	-	-	-	-	-	-	113	183	296
7:00 PM	60	80	140	68	65	133	56	72	128	-	-	-	-	-	-	-	-	-	-	-	-	61	72	134
8:00 PM	65	50	115	55	39	94	56	58	114	-	-	-	-	-	-	-	-	-	-	-	-	59	49	108
9:00 PM	27	26	53	37	32	69	29	29	58	-	-	-	-	-	-	-	-	-	-	-	-	31	29	60
10:00 PM	19	18	37	16	21	37	16	16	32	-	-	-	-	-	-	-	-	-	-	-	-	17	18	35
11:00 PM	8	10	18	7	14	21	10	11	21	-	-	-	-	-	-	-	-	-	-	-	-	8	12	20
Total	1,937	2,364	4,301	1,825	2,255	4,080	2,095	2,512	4,607	-	-	-	-	-	-	-	-	-	-	-	-	1,952	2,377	4,329
Percent	45%	55%	-	45%	55%	-	45%	55%	-	-	-	-	-	-	-	-	-	-	-	-	-	45%	55%	-

1. Mid-week average includes data between Tuesday and Thursday.

Location: 122ND AVE E S/O 36TH ST E
Date Range: 3/6/2018 - 3/12/2018
Site Code: 05



Time	Tuesday			Wednesday			Thursday			Friday			Saturday			Sunday			Monday			Mid-Week Average		
	3/6/2018			3/7/2018			3/8/2018			3/9/2018			3/10/2018			3/11/2018			3/12/2018					
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total
12:00 AM	2	5	7	2	4	6	3	4	7	-	-	-	-	-	-	-	-	-	-	-	-	2	4	7
1:00 AM	1	2	3	1	4	5	1	6	7	-	-	-	-	-	-	-	-	-	-	-	1	4	5	
2:00 AM	5	2	7	2	0	2	1	2	3	-	-	-	-	-	-	-	-	-	-	-	3	1	4	
3:00 AM	8	4	12	7	2	9	7	1	8	-	-	-	-	-	-	-	-	-	-	-	7	2	10	
4:00 AM	26	18	44	26	13	39	23	15	38	-	-	-	-	-	-	-	-	-	-	-	25	15	40	
5:00 AM	86	20	106	88	25	113	78	21	99	-	-	-	-	-	-	-	-	-	-	-	84	22	106	
6:00 AM	138	70	208	146	54	200	142	63	205	-	-	-	-	-	-	-	-	-	-	-	142	62	204	
7:00 AM	193	82	275	190	94	284	182	96	278	-	-	-	-	-	-	-	-	-	-	-	188	91	279	
8:00 AM	141	82	223	113	87	200	152	76	228	-	-	-	-	-	-	-	-	-	-	-	135	82	217	
9:00 AM	96	85	181	97	91	188	82	84	166	-	-	-	-	-	-	-	-	-	-	-	92	87	178	
10:00 AM	87	93	180	83	84	167	86	72	158	-	-	-	-	-	-	-	-	-	-	-	85	83	168	
11:00 AM	90	78	168	69	100	169	87	84	171	-	-	-	-	-	-	-	-	-	-	-	82	87	169	
12:00 PM	92	101	193	81	86	167	96	92	188	-	-	-	-	-	-	-	-	-	-	-	90	93	183	
1:00 PM	80	96	176	57	99	156	91	93	184	-	-	-	-	-	-	-	-	-	-	-	76	96	172	
2:00 PM	106	156	262	102	154	256	90	133	223	-	-	-	-	-	-	-	-	-	-	-	99	148	247	
3:00 PM	147	302	449	123	279	402	112	298	410	-	-	-	-	-	-	-	-	-	-	-	127	293	420	
4:00 PM	131	413	544	130	374	504	258	526	784	-	-	-	-	-	-	-	-	-	-	-	173	438	611	
5:00 PM	123	338	461	140	290	430	146	297	443	-	-	-	-	-	-	-	-	-	-	-	136	308	445	
6:00 PM	93	143	236	120	168	288	96	186	282	-	-	-	-	-	-	-	-	-	-	-	103	166	269	
7:00 PM	50	75	125	42	77	119	49	74	123	-	-	-	-	-	-	-	-	-	-	-	47	75	122	
8:00 PM	32	59	91	54	47	101	44	51	95	-	-	-	-	-	-	-	-	-	-	-	43	52	96	
9:00 PM	23	29	52	22	45	67	24	31	55	-	-	-	-	-	-	-	-	-	-	-	23	35	58	
10:00 PM	19	19	38	11	21	32	10	15	25	-	-	-	-	-	-	-	-	-	-	-	13	18	32	
11:00 PM	8	10	18	7	16	23	9	14	23	-	-	-	-	-	-	-	-	-	-	-	8	13	21	
Total	1,777	2,282	4,059	1,713	2,214	3,927	1,869	2,334	4,203	-	-	-	-	-	-	-	-	-	-	-	1,786	2,277	4,063	
Percent	44%	56%	-	44%	56%	-	44%	56%	-	-	-	-	-	-	-	-	-	-	-	-	44%	56%	-	

1. Mid-week average includes data between Tuesday and Thursday.

Location: 36TH ST E W/O 122ND AVE E
Date Range: 3/6/2018 - 3/12/2018
Site Code: 06

Time	Tuesday			Wednesday			Thursday			Friday			Saturday			Sunday			Monday			Mid-Week Average		
	3/6/2018			3/7/2018			3/8/2018			3/9/2018			3/10/2018			3/11/2018			3/12/2018					
	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total
12:00 AM	2	2	4	1	0	1	0	2	2	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2
1:00 AM	0	0	0	0	2	2	2	2	4	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2
2:00 AM	0	1	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0
3:00 AM	0	0	0	0	1	1	0	1	1	-	-	-	-	-	-	-	-	-	-	-	-	0	1	1
4:00 AM	5	1	6	5	1	6	3	4	7	-	-	-	-	-	-	-	-	-	-	-	-	4	2	6
5:00 AM	12	4	16	16	7	23	15	9	24	-	-	-	-	-	-	-	-	-	-	-	-	14	7	21
6:00 AM	18	15	33	13	14	27	22	11	33	-	-	-	-	-	-	-	-	-	-	-	-	18	13	31
7:00 AM	28	23	51	25	22	47	24	25	49	-	-	-	-	-	-	-	-	-	-	-	-	26	23	49
8:00 AM	21	17	38	25	17	42	32	15	47	-	-	-	-	-	-	-	-	-	-	-	-	26	16	42
9:00 AM	28	23	51	27	18	45	30	16	46	-	-	-	-	-	-	-	-	-	-	-	-	28	19	47
10:00 AM	32	12	44	22	14	36	25	17	42	-	-	-	-	-	-	-	-	-	-	-	-	26	14	41
11:00 AM	28	21	49	18	21	39	25	18	43	-	-	-	-	-	-	-	-	-	-	-	-	24	20	44
12:00 PM	17	21	38	31	18	49	19	22	41	-	-	-	-	-	-	-	-	-	-	-	-	22	20	43
1:00 PM	29	20	49	29	18	47	37	21	58	-	-	-	-	-	-	-	-	-	-	-	-	32	20	51
2:00 PM	35	26	61	33	30	63	36	22	58	-	-	-	-	-	-	-	-	-	-	-	-	35	26	61
3:00 PM	47	43	90	34	41	75	24	31	55	-	-	-	-	-	-	-	-	-	-	-	-	35	38	73
4:00 PM	37	53	90	33	41	74	39	52	91	-	-	-	-	-	-	-	-	-	-	-	-	36	49	85
5:00 PM	35	36	71	39	28	67	37	42	79	-	-	-	-	-	-	-	-	-	-	-	-	37	35	72
6:00 PM	36	27	63	61	29	90	22	42	64	-	-	-	-	-	-	-	-	-	-	-	-	40	33	72
7:00 PM	27	15	42	15	22	37	19	9	28	-	-	-	-	-	-	-	-	-	-	-	-	20	15	36
8:00 PM	20	24	44	16	30	46	18	12	30	-	-	-	-	-	-	-	-	-	-	-	-	18	22	40
9:00 PM	13	4	17	3	21	24	7	5	12	-	-	-	-	-	-	-	-	-	-	-	-	8	10	18
10:00 PM	7	8	15	7	3	10	3	5	8	-	-	-	-	-	-	-	-	-	-	-	-	6	5	11
11:00 PM	1	1	2	6	4	10	7	3	10	-	-	-	-	-	-	-	-	-	-	-	-	5	3	7
Total	478	397	875	459	402	861	446	386	832	-	-	-	-	-	-	-	-	-	-	-	-	461	395	856
Percent	55%	45%	-	53%	47%	-	54%	46%	-	-	-	-	-	-	-	-	-	-	-	-	-	54%	46%	-

1. Mid-week average includes data between Tuesday and Thursday.

ATTACHMENT 2 – SIGHT DISTANCE FIGURES





NOT TO SCALE



Private Driveway & Chrisella Rd E - Entering Sight Distance

1.17286.00 City of Edgewood On-Call Services

FIGURE

1

transpo group 575
WHAT TRANSPORTATION CAN BE:

05/08/18 Regular Council Meeting
Page 578 of 698



NOT TO SCALE



Private Driveway & Chrisella Rd E - Stopping Sight Distance

1.17286.00 City of Edgewood On-Call Services

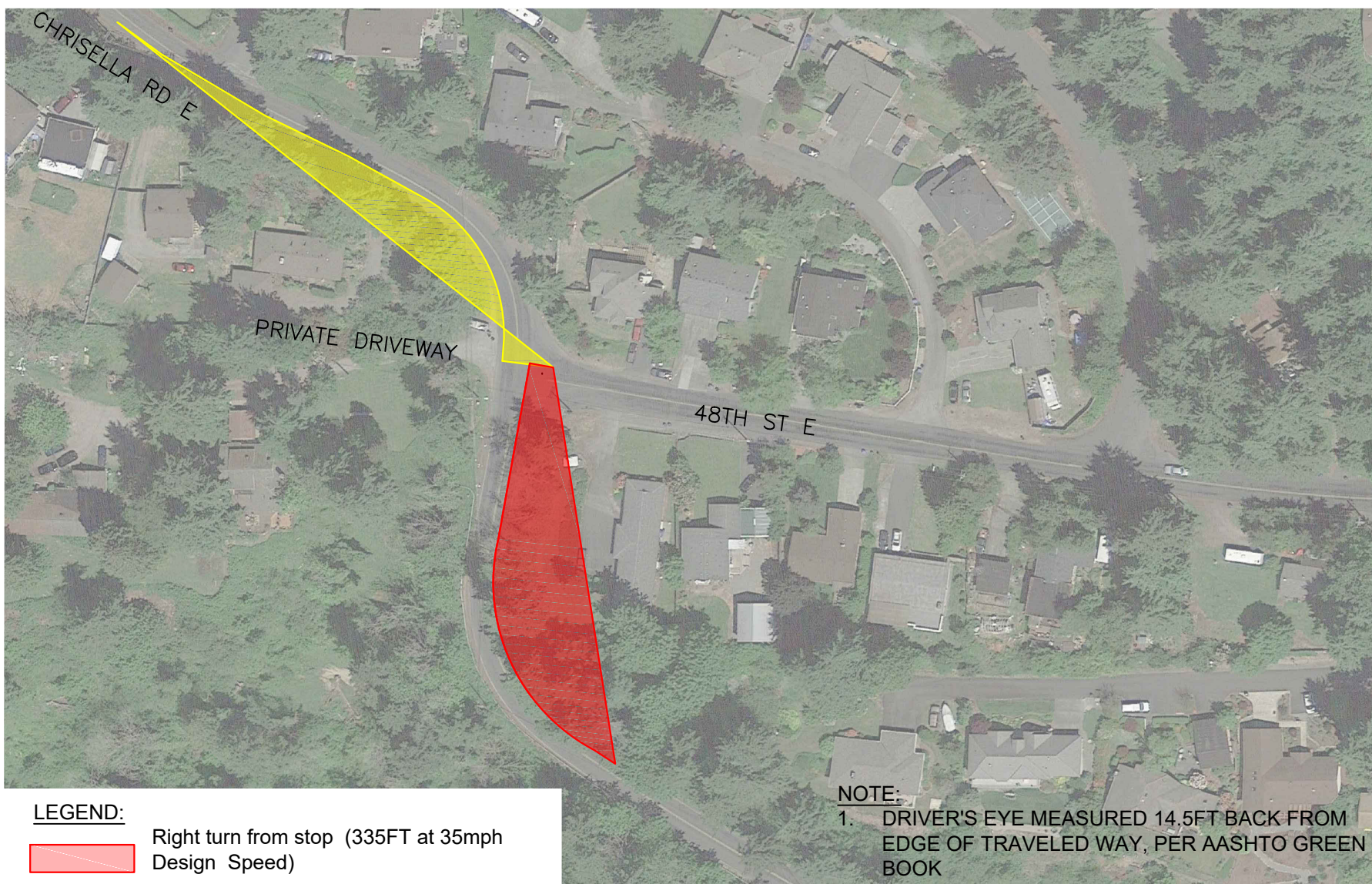
FIGURE

2

transpo group 575
WHAT TRANSPORTATION CAN BE:
05/08/18 Regular Council Meeting
Page 579 of 698



NOT TO SCALE



48th St E & Chrisella Rd E - Entering Sight Distance

1.17286.00 City of Edgewood On-Call Services

FIGURE

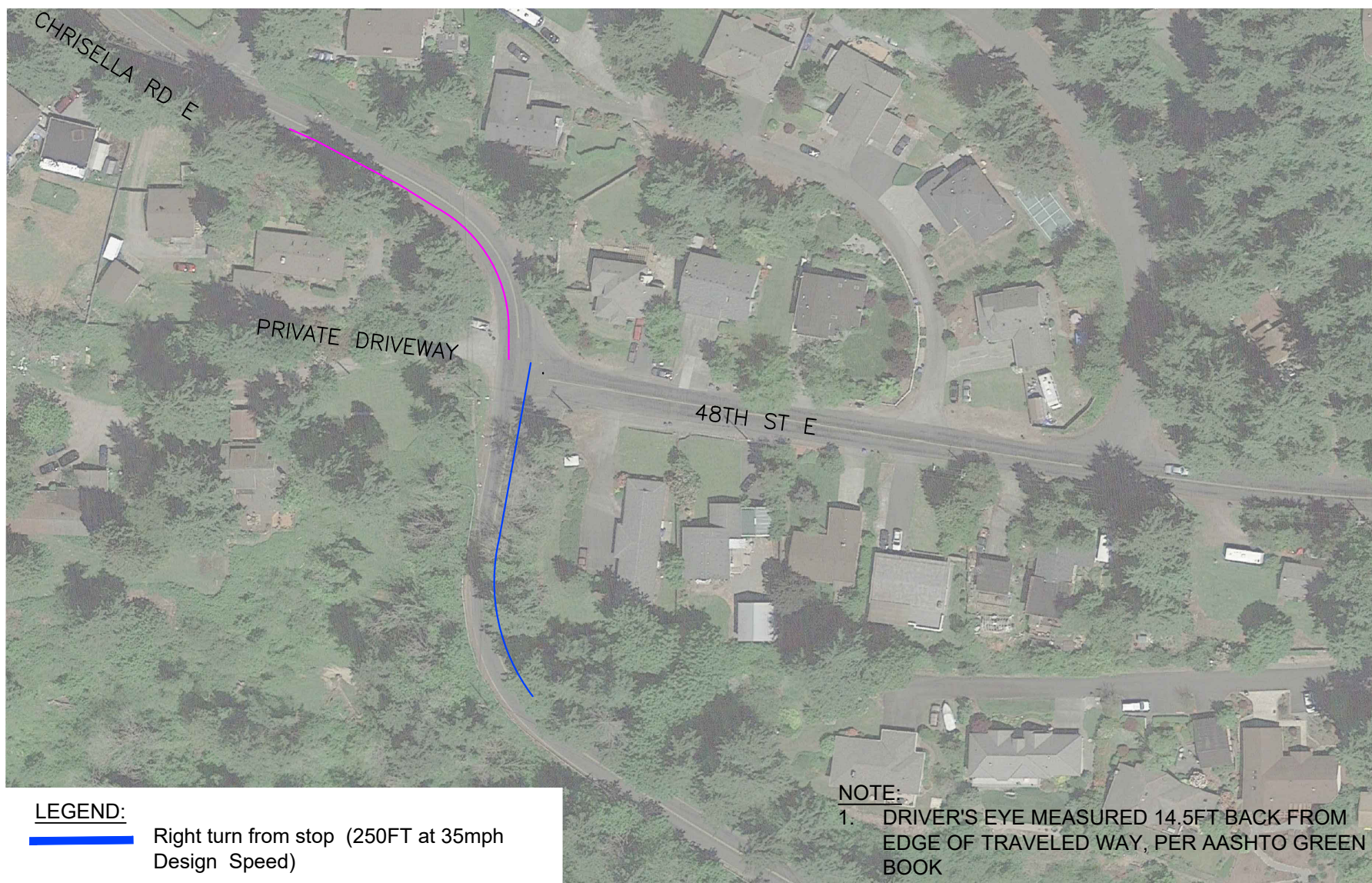
3

transpo group 7f
WHAT TRANSPORTATION CAN BE:

05/08/18 Regular Council Meeting
Page 580 of 698



NOT TO SCALE



48th St E & Chrisella Rd E - Stopping Sight Distance

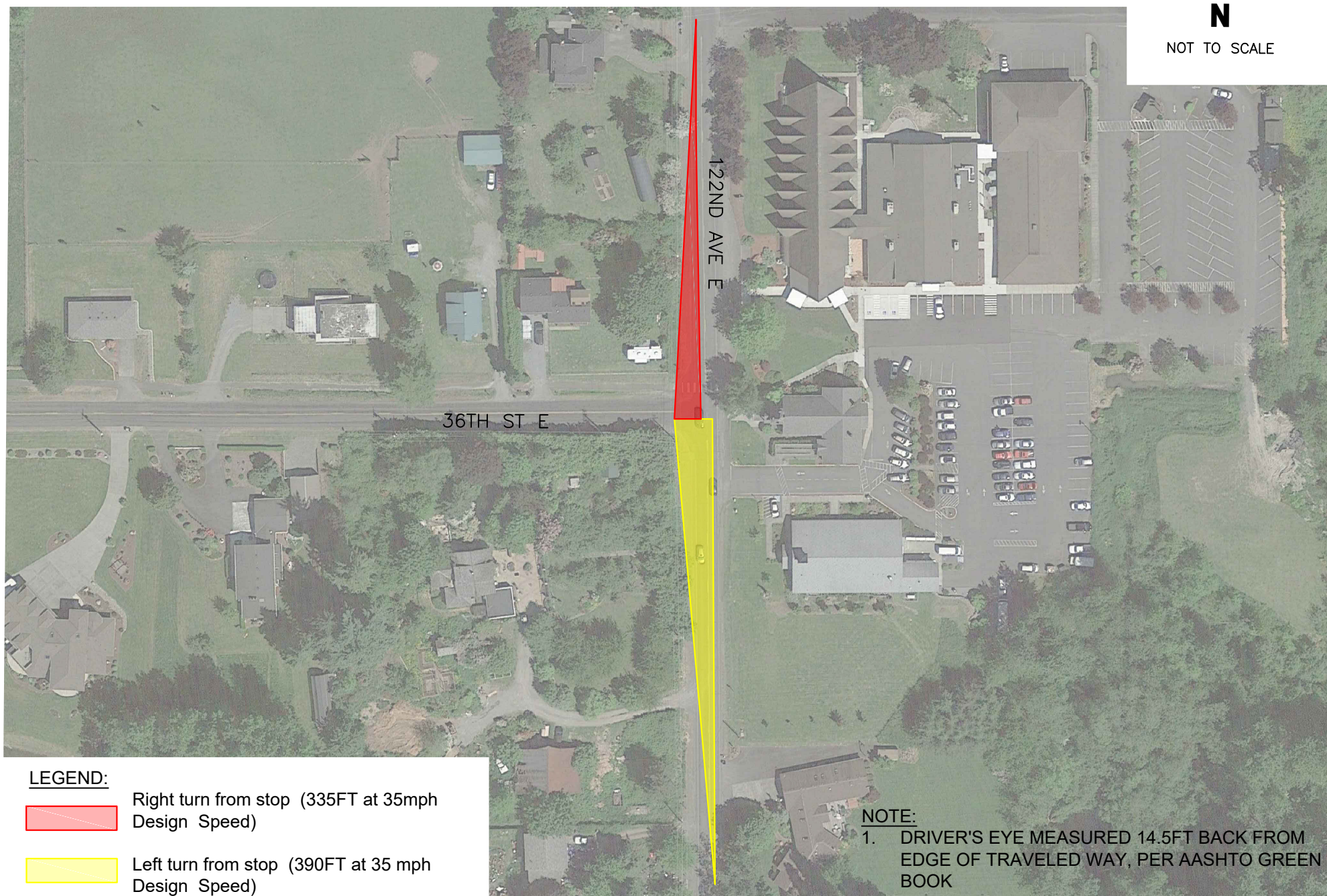
1.17286.00 City of Edgewood On-Call Services

FIGURE

4



NOT TO SCALE



36th St E & 122nd Ave E - Entering Sight Distance

1.17286.00 City of Edgewood On-Call Services

FIGURE

5



NOT TO SCALE



LEGEND:

-  Right turn from stop (250FT at 35mph Design Speed)
-  Left turn from stop (250FT at 35 mph Design Speed)

NOTE:

1. DRIVER'S EYE MEASURED 14.5FT BACK FROM EDGE OF TRAVELED WAY, PER AASHTO GREEN BOOK

36th St E & 122nd Ave E - Entering Sight Distance

1.17286.00 City of Edgewood On-Call Services

FIGURE

6

transpo group 
WHAT TRANSPORTATION CAN BE.

05/08/18 Regular Council Meeting
Page 583 of 698

RESOLUTION NO. 18-0404

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF EDGEWOOD, PIERCE COUNTY, WASHINGTON ESTABLISHING ALL-WAY STOP CONTROL AT THE INTERSECTION OF 36TH STREET EAST AND 122ND AVENUE EAST

WHEREAS, traffic volumes on certain arterial streets within the City have increased to the extent that the City Council believes additional traffic control measures are necessary to protect the public's health and safety; and

WHEREAS, on April 12, 2018, the City's Traffic Engineering Consultant, Transpo Group, issued a technical memorandum titled "Evaluation of All-Way Stops at 122nd Ave E / 36th Street E and Chrisella Rd E / 48th Street E Intersections", finding that "based on the criteria identified in the MUTCD, the installation of multi-way stop control at the intersection of 122nd Avenue E & 36th Street E is not warranted"; and

WHEREAS, the City Council reviewed the Transpo Group memorandum at their May 1, 2018 Study Session; and

WHEREAS, there is concern regarding pedestrian safety in the marked crosswalk at the intersection; and

WHEREAS, Revised Code of Washington (RCW) 46.61.200 assigns local authorities with "the power to determine and designate any particular intersection... with which vehicles shall be required to stop before entering such intersection"; and

WHEREAS, the Transpo Group memorandum provides specific implementation recommendations "should the City decide that they would like to implement an all-way stop control";

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF EDGEWOOD, WASHINGTON, DOES RESOLVE AS FOLLOWS:

Section 1. The intersection of 36th Street East and 122nd Avenue East shall hereby be designated as a "stop intersection", pursuant to RCW 46.61.200.

Section 2. The City's Traffic Engineer is hereby directed to post appropriate signage and install traffic control devices at this intersection pursuant to the RCW and MUTCD, following the April 12, 2018 Transpo Group technical memorandum recommendations.

**PASSED BY THE CITY COUNCIL OF THE CITY OF EDGEWOOD,
WASHINGTON, AT A REGULAR MEETING THEREOF, THIS 8TH DAY OF
MAY, 2018.**

Daryl Eiding, Mayor

ATTEST:

Rachel Pitzel, City Clerk



CITY OF EDGEWOOD
REQUEST FOR COUNCIL ACTION
Agenda Bill No.: 18-0405

Date Action Requested: May 8, 2018

Title: Establishing All-Way Stop at 48th Street East and Chrisella Road East

Attachments: Memo: *Evaluation of All-Way Stops at 122nd Ave E/36th Street E and Chrisella Rd E/48th Street E Intersections*
Resolution No. 18-0405

Submitted By: Jeremy Metzler, PE – Public Works Director

Approved For Agenda By: Daryl Eidinger, Mayor

Prepared For Agenda By: Jeremy Metzler, PE – Public Works Director

Recommendation: Adopt the attached resolution, directing Staff to install all-way stop control at the intersection of 48th Street East and Chrisella Road East.

Discussion: Increased traffic volumes and speeds have been a topic of concern and discussion with the City Council, recently resulting in the reduction of arterial speed limits throughout the City with the adoption of Ordinance 18-0519. The intersection of 48th Street East and Chrisella Road East has been one of three intersections under consideration for all-way stop control. The City's Traffic Engineering Consultant, Transpo Group, reviewed this intersection last month and found that "*multi-way stop control... may be warranted at Chrisella Road E/48th Street E.*"

The City Council has the authority to establish stop control at "*any particular intersection*" per RCW 46.61.200. Considering Council's immediate concerns, how additional traffic control measures will serve to help protect the public's health and safety, Transpo's findings, and immediate ability to implement a low-cost solution, Staff supports installing all-way stop control for this intersection at this time.

Alternatives: 1) Do not adopt. 2) Forward to Study Session for further review.

Fiscal Impact: Implementation of this resolution will result in four new permanent signs, three temporary warning signs, and two new stop bars, for a total estimated cost of approximately \$1,500.

RESOLUTION NO. 18-0405

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF EDGEWOOD, PIERCE COUNTY, WASHINGTON ESTABLISHING ALL-WAY STOP CONTROL AT THE INTERSECTION OF 48TH STREET EAST AND CHRISSELLA ROAD EAST

WHEREAS, traffic volumes on certain arterial streets within the City have increased to the extent that the City Council believes additional traffic control measures are necessary to protect the public's health and safety; and

WHEREAS, on April 12, 2018, the City's Traffic Engineering Consultant, Transpo Group, issued a technical memorandum titled "Evaluation of All-Way Stops at 122nd Ave E / 36th Street E and Chrisella Rd E / 48th Street E Intersections", finding that "based on the criteria identified in the MUTCD, the installation of multi-way stop control at the intersection of Chrisella Road E / 48th Street E may be warranted"; and

WHEREAS, the City Council reviewed the Transpo Group memorandum at their May 1, 2018 Study Session; and

WHEREAS, the Transpo Group memorandum supports the Council's concerns regarding limited sight distance at the intersection; and

WHEREAS, Revised Code of Washington (RCW) 46.61.200 assigns local authorities with "the power to determine and designate any particular intersection... with which vehicles shall be required to stop before entering such intersection"; and

WHEREAS, the Transpo Group memorandum provides specific implementation recommendations "should the City decide that they would like to implement an all-way stop control";

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF EDGEWOOD, WASHINGTON, DOES RESOLVE AS FOLLOWS:

Section 1. The intersection of 48th Street East and Chrisella Road East shall hereby be designated as a "stop intersection", pursuant to RCW 46.61.200.

Section 2. The City's Traffic Engineer is hereby directed to post appropriate signage and install traffic control devices at this intersection pursuant to the RCW and MUTCD, following the April 12, 2018 Transpo Group technical memorandum recommendations.

**PASSED BY THE CITY COUNCIL OF THE CITY OF EDGEWOOD,
WASHINGTON, AT A REGULAR MEETING THEREOF, THIS 8TH DAY OF
MAY, 2018.**

Daryl Eiding, Mayor

ATTEST:

Rachel Pitzel, City Clerk

MEMORANDUM

Date:	April 12, 2018	TG:	17286.00
To:	Jeremy Metzler, P.E. – City of Edgewood		
From:	Jon Pascal, P.E., PTOE – Transpo Group		
Subject:	Evaluation of All-Way Stops at 122nd Ave E/36th Street E and Chrisella Rd E/48th Street E Intersections		

The City of Edgewood has requested an analysis at the intersections of 122nd Avenue E / 36th Street E and Chrisella Road E / 48th Street E to determine if stop control at the 36th Street E and 48th Street E approaches are warranted. To complete this analysis, five-year collision data was collected from the Washington Department of Transportation (WSDOT) as well as traffic volume and speed data at each of the intersections and each approach leg. This memorandum summarizes the data and analysis, and provides direction on whether the City should consider multi-way stops at the intersection locations.

Summary of Findings

Based on a review of the Manual on Uniform Traffic Control Devices (MUTCD) **multi-way stop control is not recommended at 122nd Avenue E/36th Street E but may be warranted at Chrisella Road E/48th Street E.**

Criteria that support this conclusion include:

122nd Avenue E & 36th Street E:

- This intersection is not a high-risk collision location, with only 1 collision occurring in the past 5 years.
- While 122nd Avenue E saw high volumes of traffic during the PM peak hour, the corresponding traffic volumes on 36th Street E were low and traffic delay on all approaches was low.
- Traffic and collision analyses indicate that implementation of stop control is not warranted to control pedestrian/vehicle conflicts on any of the approaches.
- Sight distance (both entering and stopping) was determined to be adequate on all legs of the 122nd Avenue E / 36th Street E.
- Traffic operations are not significantly improved with AWSC.

Chrisella Road E & 48th Street E:

- This intersection is not a high-risk collision location, with only 2 collisions occurring in the past 5 years.
- While traffic volumes were high on Chrisella Road E, the volumes were not above the recommended threshold along 48th Street E for enough hours throughout the day to warrant the addition of stop signs along Chrisella Road E.
- Traffic and collision analyses indicate that implementation of stop control is not warranted to control pedestrian/vehicle conflicts on any of the approaches.
- Sight distance (both entering and stopping) is inadequate on the north and south legs and may warrant the installation of stop control along Chrisella Road E.

- The addition of AWSC improves the intersection operations from LOS E to LOS C in the PM peak condition, suggesting that AWSC may be warranted.

Study Area Description

The study focused on the intersections of 122nd Avenue E / 36th Street E and Chrisella Road E / 48th Street E. Stop control currently exists along 36th Street E and 48th Street E, the minor approaches at each intersection, while the major streets (122nd Avenue and Chrisella Road) are free. A general description of each roadway is provided below.

122nd Street E – 122nd Street E is a two-lane minor arterial roadway with a posted speed limit of 35 mph. This street provides a connection between 48th Street to the south and 8th Street to the north. There are no on-street parking spaces or sidewalks on either approach of the roadway.

36th Street E – 36th Street E is a two-lane collector roadway with a posted speed limit of 25 mph. This street provides a connection to State Route 161 to the west. There is a paved path on the north side of 36th Street E, between 122nd Avenue and 110th Avenue. There are no bicycle lanes along 36th Street, and no on-street parking.

Chrisella Road E – Chrisella Road E is a two-lane collector roadway with a posted speed limit of 25 mph. This street runs parallel to State Route 161 and provides a connection between 36th Street E and 48th Street E and continues farther south into the City of Puyallup. There are no bicycle lanes, sidewalks or on-street parking spaces provided along Chrisella Road E.

48th Street E – 48th Street E is a two-lane collector roadway with a posted speed limit of 25 mph. This street provides an east-west connection along the south edge of the City, between Chrisella Road E and 122nd Avenue E. There are no bicycle lanes, sidewalks or on-street parking spaces provided along 48th Street E.

Data Collection

Traffic volume and speed data were collected at all approaches to both study intersections. The data was collected for three consecutive days (March 6th to 8th). The detailed traffic counts and speed observations are provided in Attachment 1.

Multi-way Stop Analysis Evaluation Criteria

The Manual on Uniform Traffic Control Devices (MUTCD) was used as a guide to this analysis. As described in the MUTCD, the decision to implement multi-way stop control should be based on an engineering study at locations where the volume of traffic is approximately equal at each approach.

The MUTCD provides criteria that “should” or “may” be considered for multi-way stop application. The difference between “should” and “may” language in the MUTCD is that “should” suggests that multi-way stop be installed if criteria is met. The word “may” provides more justification for a City or agency to install multi-way stop control if the criteria are met. The criteria used to evaluate the installation of a multi-way stop are based on vehicle volumes, vehicles speeds, number of collisions, and vehicle speeds at the study intersection.

The following sections detail the AWSC evaluations performed at the intersections of 122nd Avenue E / 36th Street E and Chrisella Road E / 48th Street E to determine if multi-way stop control is warranted based on existing observations.

122nd Avenue E / 36th Street E AWSC Evaluation

Criteria identified in the MUTCD that is relevant to the multi-way stop application at the intersection of 122nd Avenue E / 36th Street E are described below. For ease of understanding, the criteria have been separated to distinguish whether multi-way stop control “should” or “may” be installed.

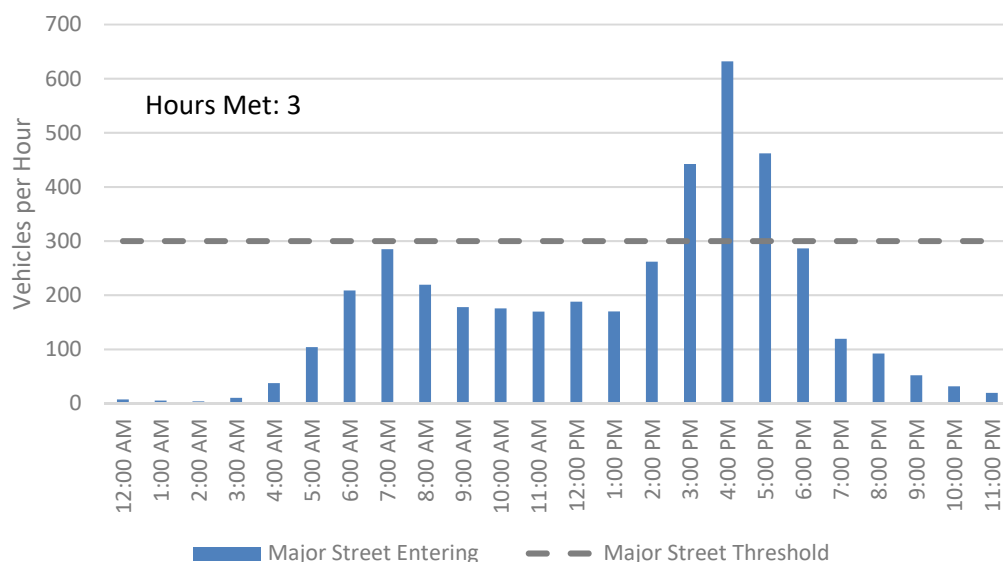
Criteria that “should” be considered:

1. The MUTCD uses safety and collisions as one indicator to designate whether further intersection control is warranted at an intersection. Intersections with a potential crash problem are those identified by 5 or more reported crashes in a 12-month period. As mentioned previously, collisions at the intersection were collected from WSDOT.
An analysis of this collision data indicates that the greatest number of collisions in a 12-month period at the intersection was 1. Therefore, no adjustment to alleviate collisions is warranted.
2. The MUTCD suggests vehicular volumes traveling along the major street (122nd Avenue E) to average at least 300 vehicles per hour for any 8 hours during a typical weekday, AND vehicles traveling along the minor street (36th Street E) should average at least 200 vehicles per hour for the same 8 hours as an indicator as whether or not further traffic control is warranted.

According to the MUTCD, volume thresholds may be reduced by 30 percent if the 85th percentile speed of the major street approaches exceed 40 mph. A review of the speed data at the intersection shows that the 85th percentile speed on 122nd Avenue E is approximately 34 mph. Therefore, a speed adjustment on the traffic threshold is not warranted at either intersection, and the vehicle volumes that should be met are 300 vehicles per hour on the major street and 200 vehicles per hour on the minor street for any 8 hours during a typical weekday.

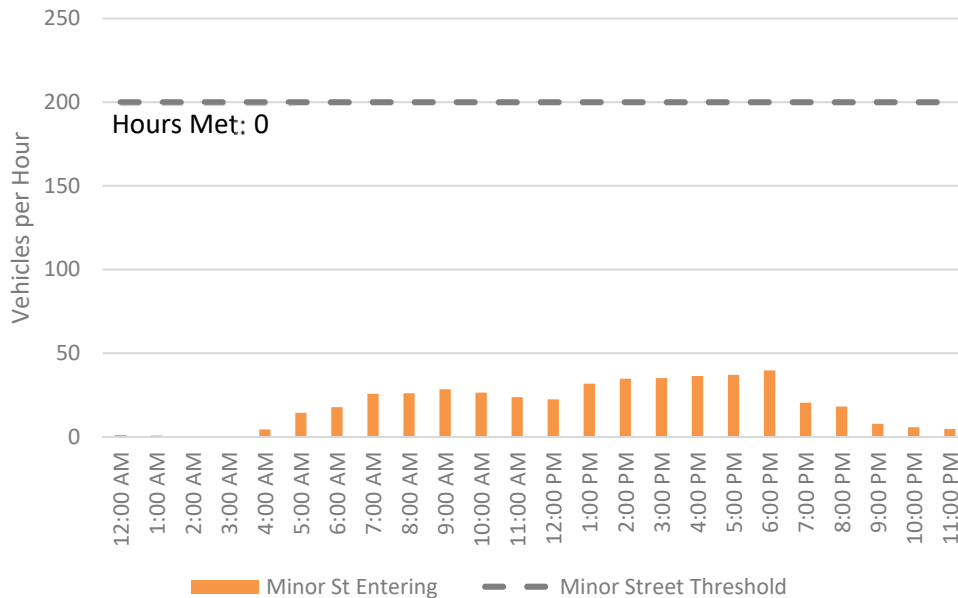
Figure 1 & Figure 2 illustrates the results of the intersection approach volumes at 122nd Avenue E and 36th Street E.

Figure 1 - 122nd Avenue E - Major Street Approach Volumes



As shown in Figure 1, the vehicle volumes on the major approach (122nd Avenue E) exceed the threshold (300) for three hours of the day (3, 4 and 5 pm) which is below the 8-hour threshold in the MUTCD. Minor street traffic volumes approaching the intersection on 36th Street E are summarized in Figure 2. Minor street approach volumes remain low throughout the day, well below the 200 vehicles per hour threshold in the MUTCD. As a result, these criteria are not met for installation of an all-way stop.

Figure 2 - 36th Street E - Minor Street Approach



- Another indicator addressed in the MUTCD is total delay at the intersection for vehicular traffic along the minor street. If the average delay per vehicle on the minor roadway is at least 30 seconds per vehicle during peak hour traffic, further traffic control may be warranted **if the minimum vehicle thresholds are also met**. While the minimum vehicle thresholds are not met for the intersection, traffic operations were still analyzed to understand how the intersection operates during the peak hours. Traffic operations were analyzed using Synchro version 9 software, which is consistent with the latest *Highway Capacity Manual* (HCM) methodology. The operations results are summarized in Table 1.

Table 1. 122nd Avenue E / 36th Street E Intersection Operations

Intersection	Control	2018 Existing (TWSC)			2018 AWSC	
		LOS ¹	Delay ²	WM ⁴	LOS	Delay
<u>Weekday AM Peak Hour</u>						
122nd Ave E/36th Street E	TWSC	B	10	EBL	A	8
<u>Weekday PM Peak Hour</u>						
122nd Ave E/36th Street E	TWSC	B	13	EBL	B	10

1. Level of service, based on 2010 Highway Capacity Manual methodology.

2. Average delay in seconds per vehicle.

3. Worst movement reported for unsignalized intersections.

Operations at 122nd Avenue E / 36th Street E intersection are LOS B for both the AM and PM peak hour, with average delays of 14 and 13 seconds per vehicle for the minor approach (36th Street E) which indicates that the intersection is operating well.

Analysis summarizing operations if all-way stop control (AWSC) was installed at each intersection was also completed and summarized in Table 1. AWSC LOS is reported based on average vehicle delay from all approaches, where two-way stop control (TWSC) reports the average delay for the worst movement.

AWSC operations are expected to slightly improve overall LOS, but would result in an increase in total vehicle delay due to all vehicles being required to stop on the major roadway.

Criteria that “may” be considered:

1. The need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes.

In the counts that were collected, no major pedestrian activity was recorded at the 122nd Avenue E / 36th Street E intersection during the peak hours. In addition, the WSDOT data for collisions over the last 5 years demonstrated that no vehicle/pedestrian conflicts occurred at the intersection. Therefore, no adjustment is warranted to alleviate vehicle/pedestrian conflicts.

2. Locations where a road user, after stopping, cannot see conflicting traffic and is not able to negotiate the intersection unless conflicting cross traffic is also required to stop.

A visual inspection of the 122nd Avenue E / 36th Street E intersection indicates that no such visual barriers exist. Therefore, no adjustment is warranted to alleviate visual barrier conflicts at the intersection. Sight Distance figures can be seen in Attachment 2.

3. An intersection of two residential neighborhood collector streets of similar design and operating characteristics where multi-way stop control would improve traffic operational characteristics of the intersection.

A review of the roadway classifications from Edgewood’s Comprehensive Plan reveals that 122nd Avenue is classified as a minor arterial, while 36th Street E is classified as a collector. In addition, the operating characteristics of the two roadways are not similar, as 122nd Street E carries much higher levels of traffic than 36th Street E. Therefore, no adjustment is warranted to improve traffic operational characteristics of the intersection.

4. The need to control left-turn conflicts.

A review of the WSDOT collision data revealed that there was one left-turn collision in the last five years at the intersection, which was the only collision during the five-year period. No left-turn conflict exists that would warrant the installation of all way stop control.

Based on the criteria identified in the MUTCD, the installation of multi-way stop control at the intersection of 122nd Avenue E & 36th Street E is not warranted.

Chrisella Road E / 48th Street E AWSC Evaluation

Criteria identified in the MUTCD that is relevant to the multi-way stop application at the intersections of Chrisella Road E / 48th Street E intersection are described below. For ease of understanding, the criteria have been separated to distinguish whether multi-way stop control “should” or “may” be installed.



Criteria that “should” be considered:

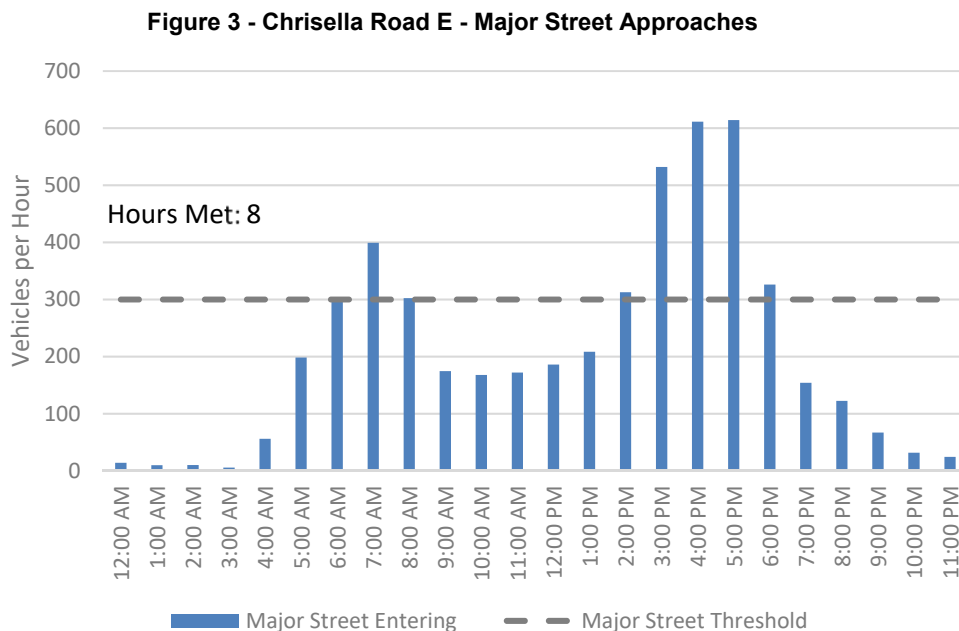
1. The MUTCD uses safety and collisions as one indicator to designate whether further intersection control is warranted at an intersection. Intersections with a potential crash problem are those identified by 5 or more reported crashes in a 12-month period. As mentioned previously, collisions at the intersection were collected from WSDOT.

An analysis of this collision data indicates that the greatest number of collisions in a 12-month period at the intersection was 1. Therefore, no adjustment to alleviate collisions is warranted.

2. The MUTCD suggests vehicular volumes traveling along the major street (Chrisella Road E) to average at least 300 vehicles per hour for any 8 hours during a typical weekday, AND vehicles traveling along the minor street (48th Street E) should average at least 200 vehicles per hour for the same 8 hours as an indicator as whether or not further traffic control is warranted.

According to the MUTCD, volume thresholds may be reduced by 30 percent if the 85th percentile speed of the major street approaches exceeds 40 mph. A review of the speed data at the intersection shows that the 85th percentile speed on Chrisella Road E is approximately 39.5 mph. Therefore, a speed adjustment on the traffic threshold is not warranted at either intersection, and the vehicle volumes that should be met are 300 vehicles per hour on the major street and 200 vehicles per hour on the minor street for any 8 hours during a typical weekday.

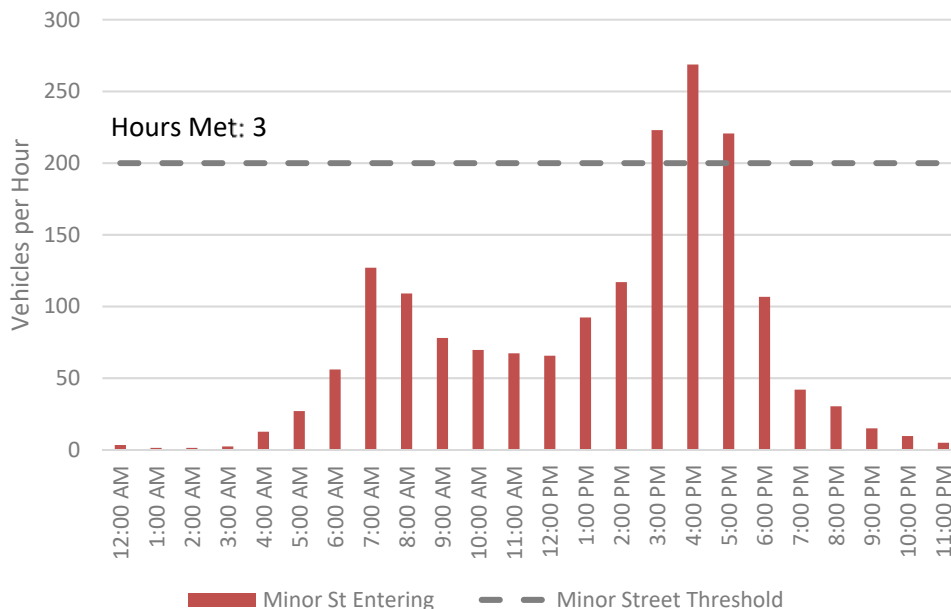
Figure 3 and Figure 4 summarize the results of the intersection approach volumes at Chrisella Road E and 48th Street E.



Major street approach volumes on Chrisella Road E exceed the 300 vehicles per hour threshold for 8 hours of the day on an average weekday. On the minor street approach, traffic volumes exceed the 200 vehicles per hour threshold for 3 hours of the day on an average weekday. While the warrant is met for the major street volumes, the minor street

minimum approach volumes are not met for enough hours during the day to meet the identified threshold for all-way stop control.

Figure 4 - 48th Street E - Minor Street Approach



- Another indicator addressed in the MUTCD is total delay at the intersection for vehicular traffic along the minor street. If the average delay per vehicle on the minor roadway is at least 30 seconds per vehicle during peak hour traffic, further traffic control may be warranted **if the minimum vehicle thresholds are also met**. While the minimum vehicle thresholds are not met for the intersection, traffic operations were still analyzed to understand how the intersection operates during the peak hours. Traffic operations were analyzed using Synchro version 9 software, which is consistent with the latest *Highway Capacity Manual* (HCM) methodology. The operations results are summarized in Table 2.

Table 2. Chrisella Road E / 48th Street E Intersection Operations

Intersection	Control	2018 Existing (TWSC)			2018 AWSC	
		LOS ¹	Delay ²	WM ⁴	LOS	Delay
<u>Weekday AM Peak Hour</u>						
Chrisella Rd E/48th Street E	TWSC	B	14	WBL	B	10
<u>Weekday PM Peak Hour</u>						
Chrisella Rd E/48th Street E	TWSC	E	41	WBL	C	17

4. Level of service, based on 2010 Highway Capacity Manual methodology.

5. Average delay in seconds per vehicle.

6. Worst movement reported for unsignalized intersections.

Operations at Chrisella Road E / 48th Street E intersection are LOS B during the AM peak hour with an average side street delay of 10 seconds per vehicle. During the PM peak hour, average side street delay is 41 seconds per vehicle which results in LOS E. This exceeds the LOS standard set forth in the City of Edgewood's Comprehensive Plan of

LOS D for all intersections (apart from intersections along Meridian Avenue where the LOS standard is E).

Installation of AWSC would improve intersection operations to LOS C during the PM peak hour, within the City's LOS standards.

Criteria that “may” be considered:

1. The need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes.

In the counts that were collected, no major pedestrian activity was recorded at the Chrisella Road E / 48th Street intersection during the peak hours. In addition, the WSDOT data for collisions over the last 5 years demonstrated that no vehicle/pedestrian conflicts occurred at the intersection. Therefore, no adjustment is warranted to alleviate vehicle/pedestrian conflicts.

2. Locations where a road user, after stopping, cannot see conflicting traffic and is not able to negotiate the intersection unless conflicting cross traffic is also required to stop.

An analysis of stopping and entering sight distance indicates that there are significant sight distance issues at the intersection. Pierce County design standards, which the City has adopted, require 390 feet of sight distance for a left turn from stop, and 250 feet of stopping sight distance. Both distances are not met for both northbound and southbound traffic, with sight distances on the southbound approach being particularly low as shown in Attachment 2. Poor sight distance could be used as a justification for installation of all-way stop control at the intersection. If the City decides to install AWSC, stop sign ahead signs should be installed on the north and south approaches to indicate to drivers that they will be required to stop ahead as the intersection lacks adequate stopping distance.

3. An intersection of two residential neighborhood collector streets of similar design and operating characteristics where multi-way stop control would improve traffic operational characteristics of the intersection.

A review of the roadway classifications from Edgewood's Comprehensive Plan reveals that both Chrisella Road and 48th Street are classified as collectors. While Chrisella Road E carries much higher levels of traffic than 48th Street E during the peak hours, much of the additional traffic is cut-through traffic that is bypassing the congestion along SR 161. As a result, the operating characteristics of the two roadways are similar when evaluating just the off-peak hours, when the regional cut-through traffic is not present. Therefore, an adjustment is warranted to improve traffic operational characteristics of the intersection over the course of a day.

4. The need to control left-turn conflicts.

A review of the WSDOT collision data revealed that there were no left-turn collisions in the last five years at the intersection of Chrisella Road E / 48th Street E. As such, AWSC installation is not warranted on the basis of left-turn conflicts.

Based on the criteria identified in the MUTCD, the installation of multi-way stop control at the intersection of Chrisella Road E / 48th Street E may be warranted.

Implementation

Should the City decide that they would like to implement an all-way stop control at either intersection, either now or in the future, the following guidelines provide information to aid the implementation process.



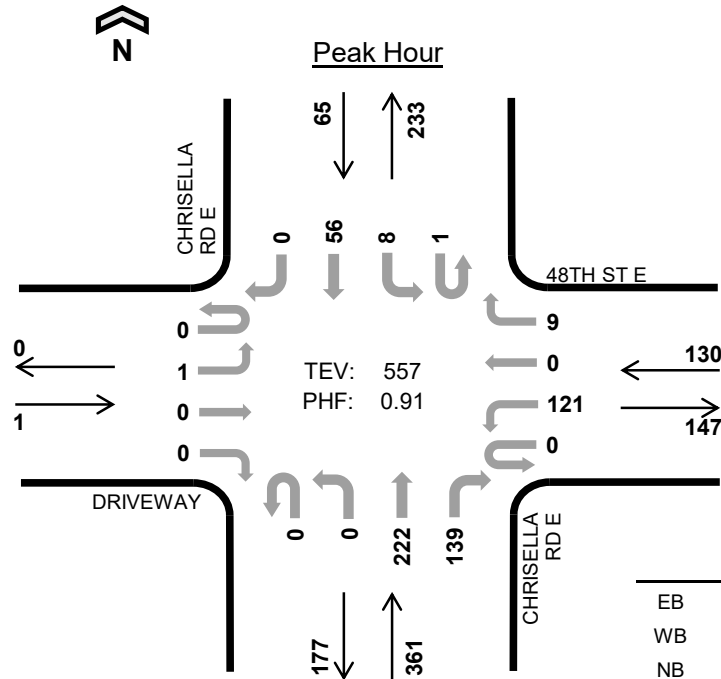
- Stop sign (R1-1) **shall** be used on each approach.
- An ALL WAY supplemental plaque (R1-3P) **shall** be mounted below each stop sign.
- Stop lines **may** be used to indicate the point behind which vehicles are required to stop.
We would recommend placement of stop bars to help reinforce the stop signs.
- We would also recommend that a sign indicating that a stop sign is ahead (W3-1) be installed on each approach along the main approaches. The signs should be accompanied by two flags attached to the top of the sign in a diagonal direction to better highlight the sign. The signs could then be taken down after a minimum period of 6 months, if the City so chooses, but should likely remain along Chrisella Road E indefinitely due to the documented sight distance issues.



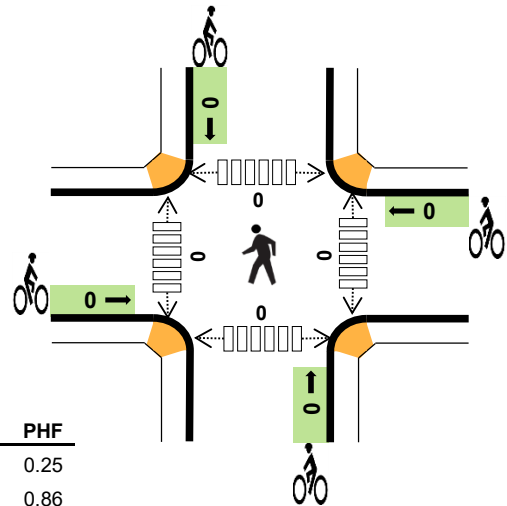
ATTACHMENT 1 – TRAFFIC DATA



Peak Hour: 7:00 AM to 8:00 AM



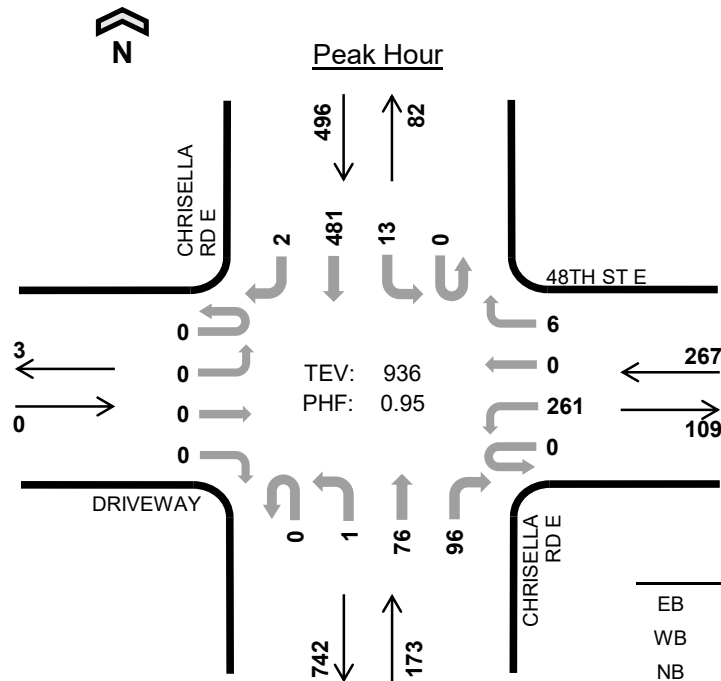
	HV %:	PHF
EB	0.0%	0.25
WB	2.3%	0.86
NB	1.1%	0.87
SB	3.1%	0.74
TOTAL	1.6%	0.91



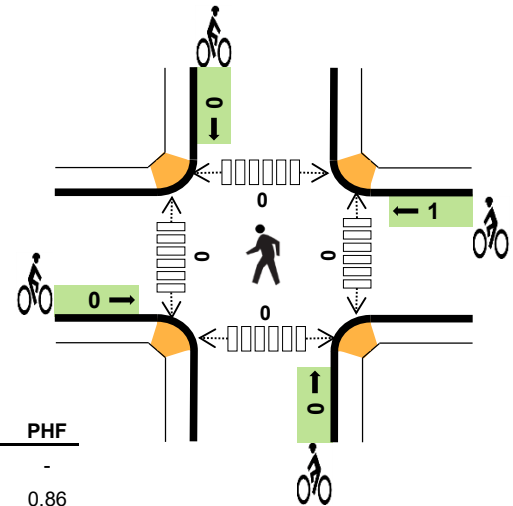
Interval Start	DRIVEWAY				48TH ST E				CHRISELLA RD E				CHRISELLA RD E				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	24	0	3	0	0	59	45	0	1	12	0	144	0
7:15 AM	0	0	0	0	0	38	0	0	0	0	50	33	0	2	13	0	136	0
7:30 AM	0	0	0	0	0	28	0	3	0	0	47	24	1	3	18	0	124	0
7:45 AM	0	1	0	0	0	31	0	3	0	0	66	37	0	2	13	0	153	557
8:00 AM	0	0	0	0	0	31	0	1	0	0	51	15	0	3	16	0	117	530
8:15 AM	0	0	0	0	0	18	0	1	0	0	30	31	0	2	20	0	102	496
8:30 AM	0	0	0	0	0	25	0	3	0	0	35	20	0	1	23	0	107	479
8:45 AM	0	0	0	0	0	30	0	4	0	0	38	20	0	6	25	0	123	449
Count Total	0	1	0	0	0	225	0	18	0	0	376	225	1	20	140	0	1,006	0
Peak Hour	0	1	0	0	0	121	0	9	0	0	222	139	1	8	56	0	557	0

[illegible]

CHRISELLA RD E 48TH ST E



Date: Tue, Mar 06, 2018
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM



	HV %:	PHF
EB	-	-
WB	1.1%	0.86
NB	0.6%	0.83
SB	1.4%	0.89
TOTAL	1.2%	0.95

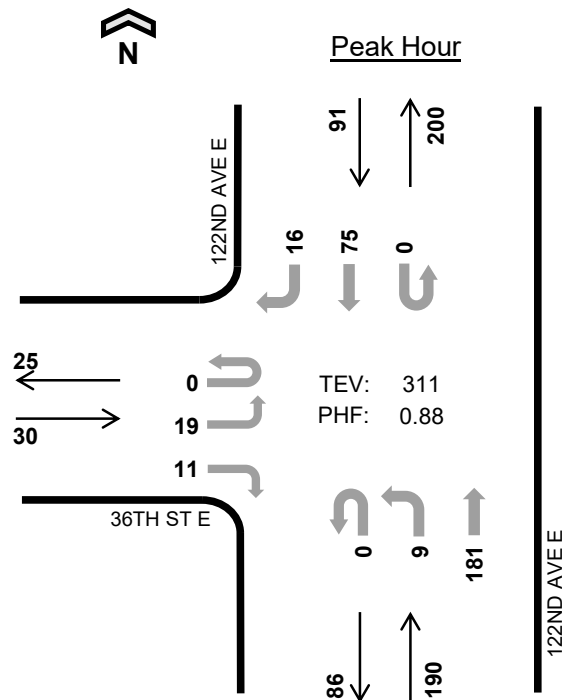
Two-Hour Count Summaries

Interval Start	DRIVEWAY				48TH ST E				CHRISELLA RD E				CHRISELLA RD E				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	77	0	1	0	1	14	17	0	1	115	1	227	0
4:15 PM	0	0	0	0	0	65	0	2	0	0	16	24	0	4	134	1	246	0
4:30 PM	0	0	0	0	0	59	0	0	0	0	21	28	0	2	121	0	231	0
4:45 PM	0	0	0	0	0	60	0	3	0	0	25	27	0	6	111	0	232	936
5:00 PM	0	0	0	0	0	53	0	2	0	0	14	13	0	6	106	0	194	903
5:15 PM	0	0	0	0	0	60	2	5	0	0	25	27	0	2	123	0	244	901
5:30 PM	0	0	0	0	0	60	0	4	0	0	24	13	0	2	115	0	218	888
5:45 PM	0	0	0	0	0	43	0	3	0	0	20	17	0	2	106	0	191	847
Count Total	0	0	0	0	0	477	2	20	0	1	159	166	0	25	931	2	1,783	0
Peak Hour	0	0	0	0	0	261	0	6	0	1	76	96	0	13	481	2	936	0

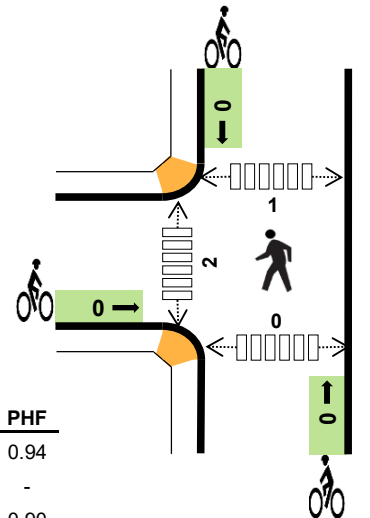
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	2	0	2	4	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	2	3	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	1	1	2	0	1	0	0	1	0	0	0	0	0
5:00 PM	0	0	0	2	2	0	0	0	0	0	0	0	2	0	2
5:15 PM	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	4	2	10	16	0	1	0	0	1	0	0	2	0	2
Peak Hour	0	3	1	7	11	0	1	0	0	1	0	0	0	0	0

122ND AVE E 36TH ST E



Date: Tue, Mar 06, 2018
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00 AM to 8:00 AM



	HV %:	PHF
EB	3.3%	0.94
WB	-	-
NB	1.1%	0.90
SB	3.3%	0.81
TOTAL	1.9%	0.88

Two-Hour Count Summaries

Interval Start	36TH ST E				0				122ND AVE E				122ND AVE E				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	6	0	2	0	0	0	0	0	0	47	0	0	0	15	4	74	0
7:15 AM	0	4	0	4	0	0	0	0	0	4	40	0	0	0	23	4	79	0
7:30 AM	0	4	0	3	0	0	0	0	0	3	50	0	0	0	24	4	88	0
7:45 AM	0	5	0	2	0	0	0	0	0	2	44	0	0	0	13	4	70	311
8:00 AM	0	2	0	4	0	0	0	0	0	4	34	0	0	0	13	3	60	297
8:15 AM	0	4	0	1	0	0	0	0	0	0	34	0	0	0	17	1	57	275
8:30 AM	0	1	0	2	0	0	0	0	0	1	34	0	0	0	22	1	61	248
8:45 AM	0	2	0	4	0	0	0	0	0	1	28	0	0	0	19	4	58	236
Count Total	0	28	0	22	0	0	0	0	0	15	311	0	0	0	146	25	547	0
Peak Hour	0	19	0	11	0	0	0	0	0	9	181	0	0	0	75	16	311	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

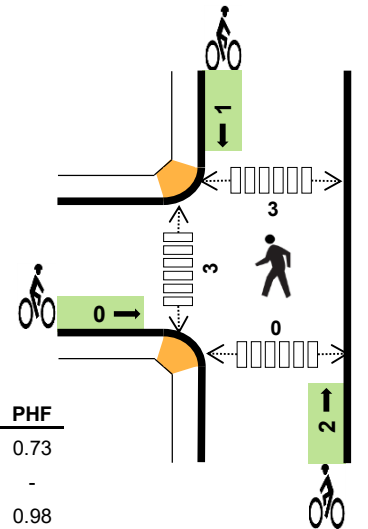
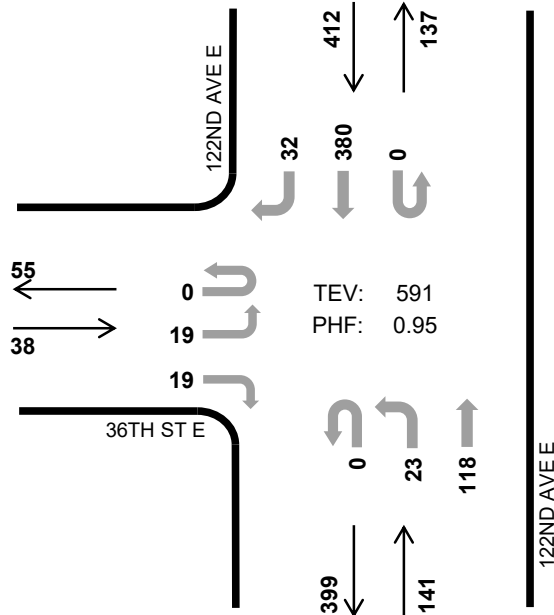
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	2	2	4	0	0	0	0	0	0	1	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:45 AM	0	0	0	1	1	0	0	0	0	0	0	0	1	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	1	0	1	2	4	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	2	0	3	5	10	0	0	0	0	0	0	2	1	0	3
Peak Hr	1	0	2	3	6	0	0	0	0	0	0	2	1	0	3

122ND AVE E 36TH ST E



Peak Hour

Date: Tue, Mar 06, 2018
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM



	HV %:	PHF
EB	2.6%	0.73
WB	-	-
NB	0.7%	0.98
SB	0.7%	0.90
TOTAL	0.8%	0.95

Two-Hour Count Summaries

Interval Start	36TH ST E				0				122ND AVE E				122ND AVE E				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	4	0	9	0	0	0	0	0	6	30	0	0	0	92	3	144	0
4:15 PM	0	2	0	4	0	0	0	0	0	4	32	0	0	0	100	14	156	0
4:30 PM	0	5	0	2	0	0	0	0	0	7	28	0	0	0	105	6	153	0
4:45 PM	0	8	0	4	0	0	0	0	0	6	28	0	0	0	83	9	138	591
5:00 PM	0	6	0	5	0	0	0	0	0	2	33	0	0	0	78	11	135	582
5:15 PM	0	3	0	4	0	0	0	0	0	3	27	0	0	0	92	5	134	560
5:30 PM	0	3	0	3	0	0	0	0	0	2	27	0	0	0	85	8	128	535
5:45 PM	0	7	0	4	0	0	0	0	0	1	30	0	0	0	64	4	110	507
Count Total	0	38	0	35	0	0	0	0	0	31	235	0	0	0	699	60	1,098	0
Peak Hour	0	19	0	19	0	0	0	0	0	23	118	0	0	0	380	32	591	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	1	0	1	0	1	1	0	2
4:45 PM	1	0	0	0	1	0	0	1	1	2	0	2	2	0	4
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
Count Total	2	0	1	4	7	0	0	2	1	3	0	3	5	0	8
Peak Hr	1	0	1	3	5	0	0	2	1	3	0	3	3	0	6

Location: CHRISELLA RD E N/O 48TH ST E
 Date Range: 3/6/2018 - 3/12/2018
 Site Code: 01

Time	Tuesday			Wednesday			Thursday			Friday			Saturday			Sunday			Monday			Mid-Week Average		
	3/6/2018			3/7/2018			3/8/2018			3/9/2018			3/10/2018			3/11/2018			3/12/2018					
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total
12:00 AM	5	5	10	1	5	6	1	4	5	-	-	-	-	-	-	-	-	-	-	-	-	2	5	7
1:00 AM	5	6	11	2	3	5	3	5	8	-	-	-	-	-	-	-	-	-	-	-	3	5	8	
2:00 AM	5	5	10	7	2	9	4	5	9	-	-	-	-	-	-	-	-	-	-	-	5	4	9	
3:00 AM	4	1	5	6	2	8	7	2	9	-	-	-	-	-	-	-	-	-	-	-	6	2	7	
4:00 AM	44	9	53	49	9	58	50	3	53	-	-	-	-	-	-	-	-	-	-	-	48	7	55	
5:00 AM	144	12	156	162	10	172	155	13	168	-	-	-	-	-	-	-	-	-	-	-	154	12	165	
6:00 AM	177	30	207	171	32	203	165	33	198	-	-	-	-	-	-	-	-	-	-	-	171	32	203	
7:00 AM	228	60	288	225	57	282	211	50	261	-	-	-	-	-	-	-	-	-	-	-	221	56	277	
8:00 AM	161	86	247	144	62	206	159	61	220	-	-	-	-	-	-	-	-	-	-	-	155	70	224	
9:00 AM	76	58	134	80	48	128	85	41	126	-	-	-	-	-	-	-	-	-	-	-	80	49	129	
10:00 AM	64	57	121	64	52	116	96	55	151	-	-	-	-	-	-	-	-	-	-	-	75	55	129	
11:00 AM	75	75	150	64	54	118	83	51	134	-	-	-	-	-	-	-	-	-	-	-	74	60	134	
12:00 PM	75	43	118	55	72	127	61	75	136	-	-	-	-	-	-	-	-	-	-	-	64	63	127	
1:00 PM	68	90	158	72	77	149	67	80	147	-	-	-	-	-	-	-	-	-	-	-	69	82	151	
2:00 PM	71	165	236	63	153	216	81	159	240	-	-	-	-	-	-	-	-	-	-	-	72	159	231	
3:00 PM	101	359	460	77	351	428	70	347	417	-	-	-	-	-	-	-	-	-	-	-	83	352	435	
4:00 PM	85	495	580	78	463	541	95	432	527	-	-	-	-	-	-	-	-	-	-	-	86	463	549	
5:00 PM	91	459	550	100	429	529	75	471	546	-	-	-	-	-	-	-	-	-	-	-	89	453	542	
6:00 PM	44	267	311	39	169	208	63	199	262	-	-	-	-	-	-	-	-	-	-	-	49	212	260	
7:00 PM	39	67	106	34	61	95	35	73	108	-	-	-	-	-	-	-	-	-	-	-	36	67	103	
8:00 PM	31	34	65	32	43	75	25	40	65	-	-	-	-	-	-	-	-	-	-	-	29	39	68	
9:00 PM	17	25	42	21	11	32	16	24	40	-	-	-	-	-	-	-	-	-	-	-	18	20	38	
10:00 PM	10	11	21	8	13	21	11	17	28	-	-	-	-	-	-	-	-	-	-	-	10	14	23	
11:00 PM	9	14	23	4	13	17	3	8	11	-	-	-	-	-	-	-	-	-	-	-	5	12	17	
Total	1,629	2,433	4,062	1,558	2,191	3,749	1,621	2,248	3,869	-	-	-	-	-	-	-	-	-	-	-	1,603	2,291	3,893	
Percent	40%	60%	-	42%	58%	-	42%	58%	-	-	-	-	-	-	-	-	-	-	-	-	41%	59%	-	

1. Mid-week average includes data between Tuesday and Thursday.

Location: CHRISELLA RD E S/O 48TH ST E
Date Range: 3/6/2018 - 3/12/2018
Site Code: 02

Time	Tuesday			Wednesday			Thursday			Friday			Saturday			Sunday			Monday			Mid-Week Average		
	3/6/2018			3/7/2018			3/8/2018			3/9/2018			3/10/2018			3/11/2018			3/12/2018					
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total
12:00 AM	10	5	15	6	5	11	12	9	21	-	-	-	-	-	-	-	-	-	-	-	-	9	6	16
1:00 AM	5	5	10	6	5	11	4	5	9	-	-	-	-	-	-	-	-	-	-	-	-	5	5	10
2:00 AM	6	6	12	7	2	9	5	6	11	-	-	-	-	-	-	-	-	-	-	-	-	6	5	11
3:00 AM	4	2	6	3	4	7	5	3	8	-	-	-	-	-	-	-	-	-	-	-	-	4	3	7
4:00 AM	45	19	64	49	19	68	53	10	63	-	-	-	-	-	-	-	-	-	-	-	-	49	16	65
5:00 AM	179	30	209	197	37	234	184	34	218	-	-	-	-	-	-	-	-	-	-	-	-	187	34	220
6:00 AM	280	90	370	268	88	356	264	79	343	-	-	-	-	-	-	-	-	-	-	-	-	271	86	356
7:00 AM	361	179	540	354	183	537	316	168	484	-	-	-	-	-	-	-	-	-	-	-	-	344	177	520
8:00 AM	241	187	428	205	169	374	252	156	408	-	-	-	-	-	-	-	-	-	-	-	-	233	171	403
9:00 AM	131	127	258	124	118	242	122	104	226	-	-	-	-	-	-	-	-	-	-	-	-	126	116	242
10:00 AM	120	116	236	90	112	202	129	104	233	-	-	-	-	-	-	-	-	-	-	-	-	113	111	224
11:00 AM	101	135	236	109	107	216	126	105	231	-	-	-	-	-	-	-	-	-	-	-	-	112	116	228
12:00 PM	130	100	230	127	118	245	111	138	249	-	-	-	-	-	-	-	-	-	-	-	-	123	119	241
1:00 PM	135	163	298	124	139	263	119	142	261	-	-	-	-	-	-	-	-	-	-	-	-	126	148	274
2:00 PM	163	261	424	133	258	391	165	254	419	-	-	-	-	-	-	-	-	-	-	-	-	154	258	411
3:00 PM	182	580	762	183	545	728	174	546	720	-	-	-	-	-	-	-	-	-	-	-	-	180	557	737
4:00 PM	139	751	890	163	729	892	142	690	832	-	-	-	-	-	-	-	-	-	-	-	-	148	723	871
5:00 PM	142	675	817	179	604	783	162	669	831	-	-	-	-	-	-	-	-	-	-	-	-	161	649	810
6:00 PM	127	362	489	97	257	354	119	299	418	-	-	-	-	-	-	-	-	-	-	-	-	114	306	420
7:00 PM	90	103	193	90	84	174	81	95	176	-	-	-	-	-	-	-	-	-	-	-	-	87	94	181
8:00 PM	97	59	156	84	60	144	69	71	140	-	-	-	-	-	-	-	-	-	-	-	-	83	63	147
9:00 PM	47	27	74	47	24	71	47	30	77	-	-	-	-	-	-	-	-	-	-	-	-	47	27	74
10:00 PM	16	17	33	19	19	38	19	18	37	-	-	-	-	-	-	-	-	-	-	-	-	18	18	36
11:00 PM	15	14	29	11	11	22	12	14	26	-	-	-	-	-	-	-	-	-	-	-	-	13	13	26
Total	2,766	4,013	6,779	2,675	3,697	6,372	2,692	3,749	6,441	-	-	-	-	-	-	-	-	-	-	-	-	2,711	3,820	6,531
Percent	41%	59%	-	42%	58%	-	42%	58%	-	-	-	-	-	-	-	-	-	-	-	-	-	42%	58%	-

1. Mid-week average includes data between Tuesday and Thursday.

Location: 48TH ST E E/O CHRISSELLA RD E
Date Range: 3/6/2018 - 3/12/2018
Site Code: 03



Time	Tuesday			Wednesday			Thursday			Friday			Saturday			Sunday			Monday			Mid-Week Average		
	3/6/2018			3/7/2018			3/8/2018			3/9/2018			3/10/2018			3/11/2018			3/12/2018					
	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total
12:00 AM	8	4	12	5	1	6	10	5	15	-	-	-	-	-	-	-	-	-	-	-	-	8	3	11
1:00 AM	3	2	5	4	2	6	1	0	1	-	-	-	-	-	-	-	-	-	-	-	3	1	4	
2:00 AM	1	1	2	1	1	2	2	2	4	-	-	-	-	-	-	-	-	-	-	-	1	1	3	
3:00 AM	2	2	4	0	3	3	0	2	2	-	-	-	-	-	-	-	-	-	-	-	1	2	3	
4:00 AM	9	12	21	8	14	22	6	12	18	-	-	-	-	-	-	-	-	-	-	-	8	13	20	
5:00 AM	43	21	64	49	35	84	40	25	65	-	-	-	-	-	-	-	-	-	-	-	44	27	71	
6:00 AM	109	60	169	103	56	159	98	52	150	-	-	-	-	-	-	-	-	-	-	-	103	56	159	
7:00 AM	145	127	272	140	131	271	116	123	239	-	-	-	-	-	-	-	-	-	-	-	134	127	261	
8:00 AM	99	117	216	93	110	203	113	100	213	-	-	-	-	-	-	-	-	-	-	-	102	109	211	
9:00 AM	63	78	141	56	83	139	50	73	123	-	-	-	-	-	-	-	-	-	-	-	56	78	134	
10:00 AM	61	72	133	41	72	113	53	65	118	-	-	-	-	-	-	-	-	-	-	-	52	70	121	
11:00 AM	47	79	126	54	60	114	55	63	118	-	-	-	-	-	-	-	-	-	-	-	52	67	119	
12:00 PM	61	67	128	81	57	138	58	73	131	-	-	-	-	-	-	-	-	-	-	-	67	66	132	
1:00 PM	87	100	187	77	90	167	67	87	154	-	-	-	-	-	-	-	-	-	-	-	77	92	169	
2:00 PM	110	108	218	90	128	218	98	115	213	-	-	-	-	-	-	-	-	-	-	-	99	117	216	
3:00 PM	97	241	338	102	207	309	108	221	329	-	-	-	-	-	-	-	-	-	-	-	102	223	325	
4:00 PM	105	261	366	101	270	371	78	275	353	-	-	-	-	-	-	-	-	-	-	-	95	269	363	
5:00 PM	84	231	315	92	209	301	110	222	332	-	-	-	-	-	-	-	-	-	-	-	95	221	316	
6:00 PM	93	112	205	72	101	173	82	107	189	-	-	-	-	-	-	-	-	-	-	-	82	107	189	
7:00 PM	65	49	114	71	41	112	62	36	98	-	-	-	-	-	-	-	-	-	-	-	66	42	108	
8:00 PM	75	29	104	58	25	83	50	37	87	-	-	-	-	-	-	-	-	-	-	-	61	30	91	
9:00 PM	36	12	48	33	18	51	40	15	55	-	-	-	-	-	-	-	-	-	-	-	36	15	51	
10:00 PM	8	9	17	14	10	24	15	10	25	-	-	-	-	-	-	-	-	-	-	-	12	10	22	
11:00 PM	10	3	13	14	7	21	11	5	16	-	-	-	-	-	-	-	-	-	-	-	12	5	17	
Total	1,421	1,797	3,218	1,359	1,731	3,090	1,323	1,725	3,048	-	-	-	-	-	-	-	-	-	-	-	1,368	1,751	3,119	
Percent	44%	56%	-	44%	56%	-	43%	57%	-	-	-	-	-	-	-	-	-	-	-	-	44%	56%	-	

1. Mid-week average includes data between Tuesday and Thursday.

Location: 122ND AVE E BTWN 35TH ST E & 34TH ST CT E
 Date Range: 3/6/2018 - 3/12/2018
 Site Code: 04

Time	Tuesday			Wednesday			Thursday			Friday			Saturday			Sunday			Monday			Mid-Week Average		
	3/6/2018			3/7/2018			3/8/2018			3/9/2018			3/10/2018			3/11/2018			3/12/2018					
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total
12:00 AM	2	5	7	3	4	7	3	6	9	-	-	-	-	-	-	-	-	-	-	-	-	3	5	8
1:00 AM	1	2	3	1	5	6	1	6	7	-	-	-	-	-	-	-	-	-	-	-	1	4	5	
2:00 AM	4	2	6	2	0	2	1	2	3	-	-	-	-	-	-	-	-	-	-	-	2	1	4	
3:00 AM	8	4	12	7	3	10	7	2	9	-	-	-	-	-	-	-	-	-	-	-	7	3	10	
4:00 AM	27	13	40	29	11	40	23	14	37	-	-	-	-	-	-	-	-	-	-	-	26	13	39	
5:00 AM	95	19	114	99	23	122	88	18	106	-	-	-	-	-	-	-	-	-	-	-	94	20	114	
6:00 AM	143	77	220	153	62	215	151	61	212	-	-	-	-	-	-	-	-	-	-	-	149	67	216	
7:00 AM	204	86	290	202	99	301	196	105	301	-	-	-	-	-	-	-	-	-	-	-	201	97	297	
8:00 AM	142	84	226	122	85	207	156	83	239	-	-	-	-	-	-	-	-	-	-	-	140	84	224	
9:00 AM	107	80	187	88	93	181	98	86	184	-	-	-	-	-	-	-	-	-	-	-	98	86	184	
10:00 AM	95	102	197	89	77	166	91	92	183	-	-	-	-	-	-	-	-	-	-	-	92	90	182	
11:00 AM	101	75	176	71	97	168	91	91	182	-	-	-	-	-	-	-	-	-	-	-	88	88	175	
12:00 PM	106	104	210	102	96	198	115	95	210	-	-	-	-	-	-	-	-	-	-	-	108	98	206	
1:00 PM	93	93	186	66	95	161	104	94	198	-	-	-	-	-	-	-	-	-	-	-	88	94	182	
2:00 PM	102	174	276	108	153	261	99	161	260	-	-	-	-	-	-	-	-	-	-	-	103	163	266	
3:00 PM	132	322	454	135	295	430	124	330	454	-	-	-	-	-	-	-	-	-	-	-	130	316	446	
4:00 PM	152	413	565	130	391	521	279	573	852	-	-	-	-	-	-	-	-	-	-	-	187	459	646	
5:00 PM	152	346	498	126	313	439	164	318	482	-	-	-	-	-	-	-	-	-	-	-	147	326	473	
6:00 PM	92	179	271	109	182	291	137	189	326	-	-	-	-	-	-	-	-	-	-	-	113	183	296	
7:00 PM	60	80	140	68	65	133	56	72	128	-	-	-	-	-	-	-	-	-	-	-	61	72	134	
8:00 PM	65	50	115	55	39	94	56	58	114	-	-	-	-	-	-	-	-	-	-	-	59	49	108	
9:00 PM	27	26	53	37	32	69	29	29	58	-	-	-	-	-	-	-	-	-	-	-	31	29	60	
10:00 PM	19	18	37	16	21	37	16	16	32	-	-	-	-	-	-	-	-	-	-	-	17	18	35	
11:00 PM	8	10	18	7	14	21	10	11	21	-	-	-	-	-	-	-	-	-	-	-	8	12	20	
Total	1,937	2,364	4,301	1,825	2,255	4,080	2,095	2,512	4,607	-	-	-	-	-	-	-	-	-	-	-	1,952	2,377	4,329	
Percent	45%	55%	-	45%	55%	-	45%	55%	-	-	-	-	-	-	-	-	-	-	-	-	45%	55%	-	

1. Mid-week average includes data between Tuesday and Thursday.

Location: 122ND AVE E S/O 36TH ST E
 Date Range: 3/6/2018 - 3/12/2018
 Site Code: 05

Time	Tuesday			Wednesday			Thursday			Friday			Saturday			Sunday			Monday			Mid-Week Average		
	3/6/2018			3/7/2018			3/8/2018			3/9/2018			3/10/2018			3/11/2018			3/12/2018					
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total
12:00 AM	2	5	7	2	4	6	3	4	7	-	-	-	-	-	-	-	-	-	-	-	-	2	4	7
1:00 AM	1	2	3	1	4	5	1	6	7	-	-	-	-	-	-	-	-	-	-	-	1	4	5	
2:00 AM	5	2	7	2	0	2	1	2	3	-	-	-	-	-	-	-	-	-	-	-	3	1	4	
3:00 AM	8	4	12	7	2	9	7	1	8	-	-	-	-	-	-	-	-	-	-	-	7	2	10	
4:00 AM	26	18	44	26	13	39	23	15	38	-	-	-	-	-	-	-	-	-	-	-	25	15	40	
5:00 AM	86	20	106	88	25	113	78	21	99	-	-	-	-	-	-	-	-	-	-	-	84	22	106	
6:00 AM	138	70	208	146	54	200	142	63	205	-	-	-	-	-	-	-	-	-	-	-	142	62	204	
7:00 AM	193	82	275	190	94	284	182	96	278	-	-	-	-	-	-	-	-	-	-	-	188	91	279	
8:00 AM	141	82	223	113	87	200	152	76	228	-	-	-	-	-	-	-	-	-	-	-	135	82	217	
9:00 AM	96	85	181	97	91	188	82	84	166	-	-	-	-	-	-	-	-	-	-	-	92	87	178	
10:00 AM	87	93	180	83	84	167	86	72	158	-	-	-	-	-	-	-	-	-	-	-	85	83	168	
11:00 AM	90	78	168	69	100	169	87	84	171	-	-	-	-	-	-	-	-	-	-	-	82	87	169	
12:00 PM	92	101	193	81	86	167	96	92	188	-	-	-	-	-	-	-	-	-	-	-	90	93	183	
1:00 PM	80	96	176	57	99	156	91	93	184	-	-	-	-	-	-	-	-	-	-	-	76	96	172	
2:00 PM	106	156	262	102	154	256	90	133	223	-	-	-	-	-	-	-	-	-	-	-	99	148	247	
3:00 PM	147	302	449	123	279	402	112	298	410	-	-	-	-	-	-	-	-	-	-	-	127	293	420	
4:00 PM	131	413	544	130	374	504	258	526	784	-	-	-	-	-	-	-	-	-	-	-	173	438	611	
5:00 PM	123	338	461	140	290	430	146	297	443	-	-	-	-	-	-	-	-	-	-	-	136	308	445	
6:00 PM	93	143	236	120	168	288	96	186	282	-	-	-	-	-	-	-	-	-	-	-	103	166	269	
7:00 PM	50	75	125	42	77	119	49	74	123	-	-	-	-	-	-	-	-	-	-	-	47	75	122	
8:00 PM	32	59	91	54	47	101	44	51	95	-	-	-	-	-	-	-	-	-	-	-	43	52	96	
9:00 PM	23	29	52	22	45	67	24	31	55	-	-	-	-	-	-	-	-	-	-	-	23	35	58	
10:00 PM	19	19	38	11	21	32	10	15	25	-	-	-	-	-	-	-	-	-	-	-	13	18	32	
11:00 PM	8	10	18	7	16	23	9	14	23	-	-	-	-	-	-	-	-	-	-	-	8	13	21	
Total	1,777	2,282	4,059	1,713	2,214	3,927	1,869	2,334	4,203	-	-	-	-	-	-	-	-	-	-	-	1,786	2,277	4,063	
Percent	44%	56%	-	44%	56%	-	44%	56%	-	-	-	-	-	-	-	-	-	-	-	-	44%	56%	-	

1. Mid-week average includes data between Tuesday and Thursday.

Location: 36TH ST E W/O 122ND AVE E
Date Range: 3/6/2018 - 3/12/2018
Site Code: 06

Time	Tuesday			Wednesday			Thursday			Friday			Saturday			Sunday			Monday			Mid-Week Average		
	3/6/2018			3/7/2018			3/8/2018			3/9/2018			3/10/2018			3/11/2018			3/12/2018					
	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total
12:00 AM	2	2	4	1	0	1	0	2	2	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2
1:00 AM	0	0	0	0	2	2	2	2	4	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2
2:00 AM	0	1	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0
3:00 AM	0	0	0	0	1	1	0	1	1	-	-	-	-	-	-	-	-	-	-	-	-	0	1	1
4:00 AM	5	1	6	5	1	6	3	4	7	-	-	-	-	-	-	-	-	-	-	-	-	4	2	6
5:00 AM	12	4	16	16	7	23	15	9	24	-	-	-	-	-	-	-	-	-	-	-	-	14	7	21
6:00 AM	18	15	33	13	14	27	22	11	33	-	-	-	-	-	-	-	-	-	-	-	-	18	13	31
7:00 AM	28	23	51	25	22	47	24	25	49	-	-	-	-	-	-	-	-	-	-	-	-	26	23	49
8:00 AM	21	17	38	25	17	42	32	15	47	-	-	-	-	-	-	-	-	-	-	-	-	26	16	42
9:00 AM	28	23	51	27	18	45	30	16	46	-	-	-	-	-	-	-	-	-	-	-	-	28	19	47
10:00 AM	32	12	44	22	14	36	25	17	42	-	-	-	-	-	-	-	-	-	-	-	-	26	14	41
11:00 AM	28	21	49	18	21	39	25	18	43	-	-	-	-	-	-	-	-	-	-	-	-	24	20	44
12:00 PM	17	21	38	31	18	49	19	22	41	-	-	-	-	-	-	-	-	-	-	-	-	22	20	43
1:00 PM	29	20	49	29	18	47	37	21	58	-	-	-	-	-	-	-	-	-	-	-	-	32	20	51
2:00 PM	35	26	61	33	30	63	36	22	58	-	-	-	-	-	-	-	-	-	-	-	-	35	26	61
3:00 PM	47	43	90	34	41	75	24	31	55	-	-	-	-	-	-	-	-	-	-	-	-	35	38	73
4:00 PM	37	53	90	33	41	74	39	52	91	-	-	-	-	-	-	-	-	-	-	-	-	36	49	85
5:00 PM	35	36	71	39	28	67	37	42	79	-	-	-	-	-	-	-	-	-	-	-	-	37	35	72
6:00 PM	36	27	63	61	29	90	22	42	64	-	-	-	-	-	-	-	-	-	-	-	-	40	33	72
7:00 PM	27	15	42	15	22	37	19	9	28	-	-	-	-	-	-	-	-	-	-	-	-	20	15	36
8:00 PM	20	24	44	16	30	46	18	12	30	-	-	-	-	-	-	-	-	-	-	-	-	18	22	40
9:00 PM	13	4	17	3	21	24	7	5	12	-	-	-	-	-	-	-	-	-	-	-	-	8	10	18
10:00 PM	7	8	15	7	3	10	3	5	8	-	-	-	-	-	-	-	-	-	-	-	-	6	5	11
11:00 PM	1	1	2	6	4	10	7	3	10	-	-	-	-	-	-	-	-	-	-	-	-	5	3	7
Total	478	397	875	459	402	861	446	386	832	-	-	-	-	-	-	-	-	-	-	-	-	461	395	856
Percent	55%	45%	-	53%	47%	-	54%	46%	-	-	-	-	-	-	-	-	-	-	-	-	-	54%	46%	-

1. Mid-week average includes data between Tuesday and Thursday.

ATTACHMENT 2 – SIGHT DISTANCE FIGURES





NOT TO SCALE



Private Driveway & Chrisella Rd E - Entering Sight Distance

1.17286.00 City of Edgewood On-Call Services



NOT TO SCALE



Private Driveway & Chrisella Rd E - Stopping Sight Distance

1.17286.00 City of Edgewood On-Call Services

FIGURE

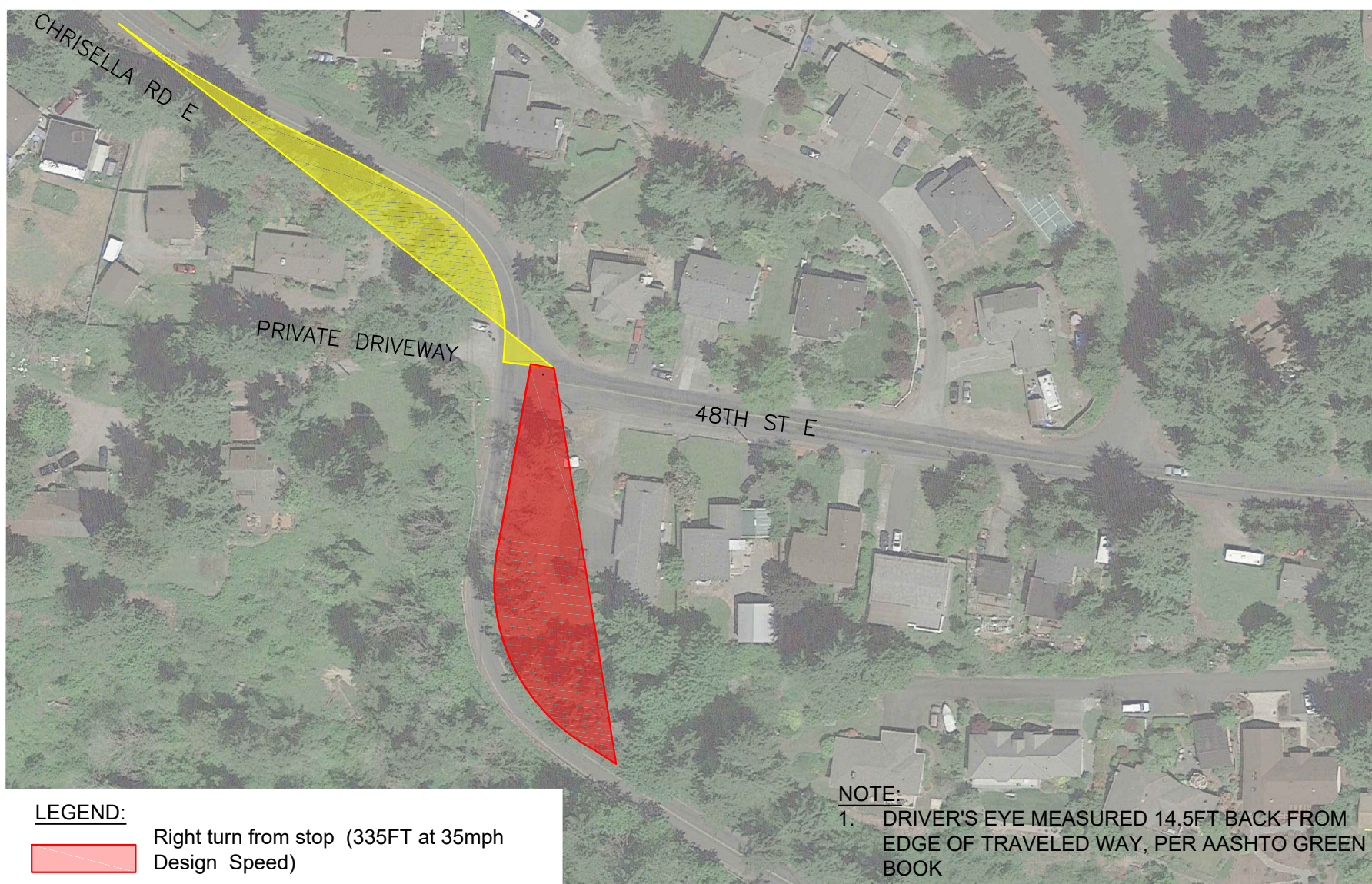
2

transpo group 57
WHAT TRANSPORTATION CAN BE:

05/08/18 Regular Council Meeting
Page 611 of 698



NOT TO SCALE



48th St E & Chrisella Rd E - Entering Sight Distance

1.17286.00 City of Edgewood On-Call Services

FIGURE

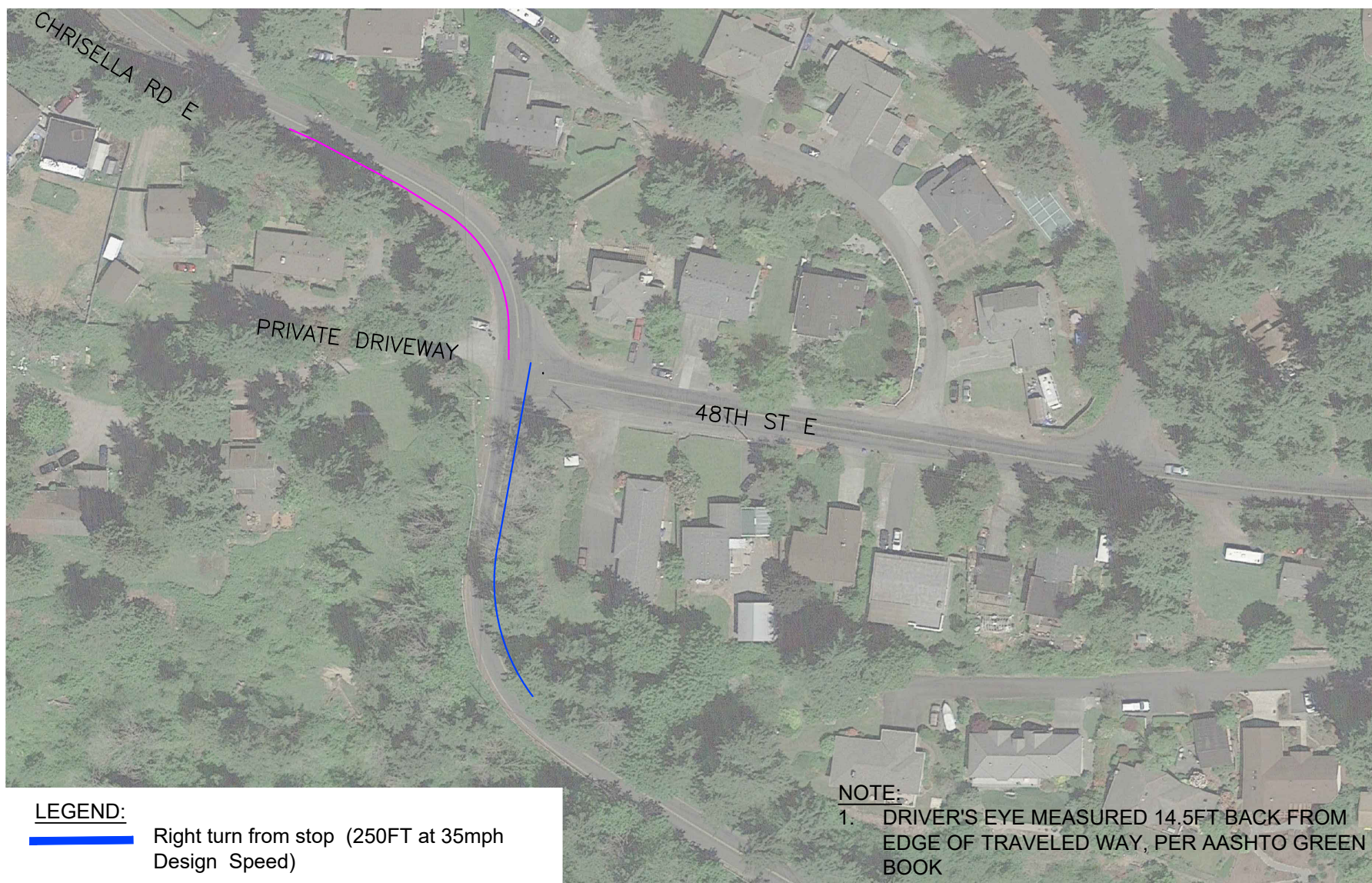
3

transpo group 7f
WHAT TRANSPORTATION CAN BE:

05/08/18 Regular Council Meeting
Page 612 of 698



NOT TO SCALE



48th St E & Chrisella Rd E - Stopping Sight Distance

1.17286.00 City of Edgewood On-Call Services

FIGURE

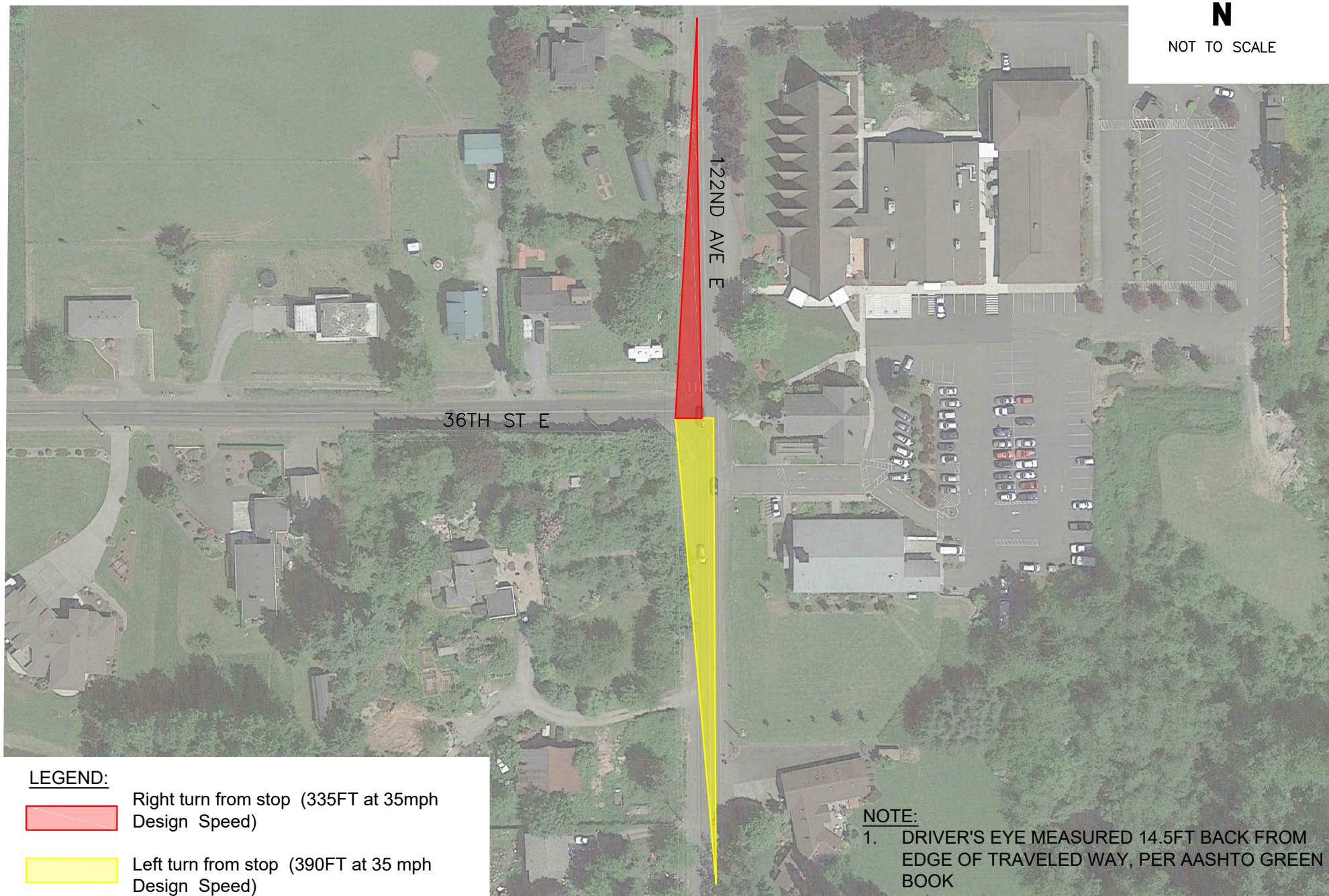
4

transpo group 57
WHAT TRANSPORTATION CAN BE:

05/08/18 Regular Council Meeting
Page 613 of 698



NOT TO SCALE



36th St E & 122nd Ave E - Entering Sight Distance

1.17286.00 City of Edgewood On-Call Services

FIGURE

5

transpo group 75
WHAT TRANSPORTATION CAN BE.

05/08/18 Regular Council Meeting
Page 614 of 698



NOT TO SCALE



36th St E & 122nd Ave E - Entering Sight Distance

1.17286.00 City of Edgewood On-Call Services

FIGURE

6

transpo group 75
WHAT TRANSPORTATION CAN BE.

05/08/18 Regular Council Meeting
Page 615 of 698



CITY OF EDGEWOOD
REQUEST FOR COUNCIL ACTION
Agenda Bill No. : 18-0523

Date: May 8, 2018
Title: Plat Alteration Code Amendment

Attachments:

- 1) Ordinance with Draft Code Amendments
- 2) Redlined Ordinance
- 3) Planning Commission Recommendation

Submitted by: Darren Groth, Community Development Director
Approved For Agenda by: Daryl Eidinger, Mayor

Recommendation: Staff recommends APPROVAL of the development code amendment adding EMC Chapter 16.07.

Fiscal Impact: None

Discussion

The City of Edgewood's subdivision, short plat, or binding site plan codes do not include a section allowing modifications or vacation of recorded plats or binding site plans. The Washington Subdivision Act includes provisions and procedures for a vacation of subdivision and an alteration of subdivision under RCW Section 58.17.212 and 58.17.215, respectively. Since most municipal codes have a procedure for altering or vacating approved plats per state law, this request is to add a new Chapter 16.07 to the Edgewood Municipal Code (EMC).

This request was previously heard by the Planning Commission and resulted in an approval recommendation. The request was forwarded to City Council for final action; however, City staff recognized that the drafted code did not address the initial reasons the plat alteration code amendment was necessary, which were the two requests to amend a short subdivision. As a result, staff asked City Council to remand this request back to the Planning Commission to hear the revised draft.

On February 26, 2018, the Planning Commission held a public hearing on the revised draft and the Planning Commission's recommendation to approve is attached as Exhibit 3. On April 24, 2018, City Council held a public hearing on the code amendment. No additional comments were submitted to City Council, so no further changes were made to the drafted code amendment since the Planning Commission's recommendation.

ORDINANCE NO. 18-0523

AN ORDINANCE OF THE CITY OF EDGEWOOD, WASHINGTON, RELATING TO SUBDIVISIONS, ADDING PROCEDURES FOR ALTERATIONS AND VACATIONS OF APPROVED SUBDIVISIONS AND APPROVED BINDING SITE PLANS, DESCRIBING THE ELEMENTS OF A COMPLETE APPLICATION, CRITERIA FOR APPROVAL, EFFECT OF APPROVAL AND REQUIREMENTS FOR RECORDING, PURSUANT TO RCW 58.17.212 AND 58.17.215, ADDING A NEW CHAPTER 16.07 TO THE EDGEWOOD MUNICIPAL CODE.

WHEREAS, the Washington Subdivision Act (hereinafter the “Act”) includes provisions and procedures for a vacation of subdivision and an alteration of subdivision under RCW Section 58.17.212 and 58.17.215, respectively; and

WHEREAS, the Act also allows municipalities to adopt procedures for binding site plans, consistent with RCW Section 58.17.035; and

WHEREAS, the City of Edgewood has adopted development regulations applicable to plats and binding site plans but does not have any procedures for the vacation and alteration of approved short plats, full subdivision plats, and binding site plans; and

WHEREAS, the City’s SEPA Responsible Official has determined that this Ordinance is categorically exempt from SEPA as affecting only procedural and no substantive standards, pursuant to WAC Section 197-11-800(19); and

WHEREAS, on February 6, 2018, the Washington State Department of Commerce sent confirmation to the City that the procedural requirements in RCW 36.70A.106(1) were met; and

WHEREAS, on February 26, 2018, the Planning Commission held a public hearing on this Ordinance and made a recommendation of **APPROVAL** to the City Council; and

WHEREAS, the City Council held a public hearing on April 24, 2018 and considered this Ordinance during its regular City Council meeting on May 8, 2018; Now, Therefore,

THE CITY COUNCIL OF THE CITY OF EDGEWOOD, WASHINGTON, ORDAINS
AS FOLLOWS:

Section 1. A new Chapter 16.07 is hereby added to the Edgewood Municipal Code (EMC), which shall read as follows:

Chapter 16.07
Subdivision Vacations and Alterations

Sections:

16.07.010	Purpose.
16.07.020	Administration.
16.07.030	Procedure.
16.07.040	Additional Notice of Public Hearing
16.07.050	Requirements for a Complete Application.
16.07.060	Criteria for Approval.
16.07.070	Time Limitation for Final Decision.
16.07.080	Recording.
16.07.090	Alterations to a Short Subdivision.

16.07.010 Purpose. The purpose of this chapter is to regulate and allow vacations or alterations of approved short plats, full subdivision plats, and binding site plans. It does not allow modification or revision of recorded Boundary Line Adjustments (BLA), preliminary subdivision approvals, or preliminary binding site plans. The procedure for vacation of plats does not apply to the vacation or alteration of any plat of state-granted tide or shore lands.

When the vacation application is specifically for a city street, the procedures for street vacations in RCW 35.79 RCW shall be utilized for the street vacation. When the application is for the vacation of the plat or binding site plan together with the roads or streets, the procedure for

vacation in this chapter shall be used, but vacations of streets subject to RCW 35.79.035 may not be made under this procedure.

16.07.020 Administration. The Director is authorized and directed to administer the provisions of this chapter. The authority to approve, approve with conditions, or deny an approved plat or a final binding site plan vacation or alteration is granted to the Hearing Examiner after a public hearing.

16.07.030 Procedure. Steps 16.07.030.A-I shall be followed in the processing of approved plat or final binding site plan vacation or alteration applications and administrative appeals shall be heard by City Council. See EMC Section 16.07.090 for Alterations to a Short Subdivision.

- | | | |
|----|----------------------|--|
| A. | EMC 18.40.150 | Determination of Complete Application; |
| B. | EMC 18.40.180 | Notice of Application; |
| D. | EMC 20.05 | SEPA (if required); |
| C. | EMC 18.30.050 | Determination of Consistency; |
| E. | EMC 18.40.190 | Notice of Public Hearing; |
| F. | EMC 18.40.100(K) | Preparation of Staff Report; |
| G. | EMC 18.40.100(L) | Public Hearing; |
| H. | EMC 18.40.100(Q – R) | Notice of Decision; and |
| I. | EMC 18.40.100(T) | Hearing Examiner Appeal. |

16.07.040 Additional Notice of Public Hearing. In addition to the notice required in EMC Section 16.07.030.E, the City shall provide notice of an application for a full subdivision or binding site plan vacation or alteration to all owners of property within the subdivision not included in the application, as provided for in RCW 58.17.080 and RCW 58.17.090. The notice shall establish the date of the public hearing.

16.07.050 Requirements for a Complete Application.

A. The following materials shall be submitted to the City for a complete full subdivision or binding site plan Vacation Application:

1. Date, name, address, and telephone number of the applicant or property owner;
2. The reason(s) for the proposed vacation;
3. Signatures of all parties having an ownership interest in the subdivision or that portion of the subdivision proposed to be vacated;
4. If the plat or binding site plan is subject to restrictive covenants which were filed at the time of the approval of the plat, and the application for the vacation would result in the violation of a covenant, the application shall include an agreement signed by all parties subject to the covenants, which provides that the parties agree to terminate or alter the restrictive covenants to accomplish the purpose of the vacation of the plat or portion thereof;
5. Acknowledgement that if any street is included in the application for a vacation, that the applicant shall be required to pay the amount contemplated in RCW 35.79.030, if the vacation is granted pursuant to EMC Section 12.05.015;

6. A copy of the approved plat or binding site plan sought to be vacated, together with all plat or binding site plan amendments or vacations recorded since the date of the original approval;

7. A recent (120 days) title report for each of the properties affected by the vacation that confirms the owner(s) signing the application hold title of the lands described and shown in the application area; and

8. If the vacation is for a portion of the plat or binding site plan, the applicant must demonstrate that the partial vacation will not violate the terms of plat or binding site plan approval or this Chapter.

9. Electronic version of all submittal documents, in a format acceptable to the City.

10. An application fee.

B. The following materials shall be submitted to the City for a complete full subdivision or binding site plan Alteration Application.

1. Date, name, address, and telephone number of the applicant or property owner;

2. The reason(s) for the proposed alteration;

3. Signatures of the majority of those persons having an ownership interest in the lots, tracts, parcels, sites, or divisions in the plat or binding site plan proposed to be altered;

4. If the plat or final binding site plan is subject to restrictive covenants which were filed at the time of the approval of the plat or final binding site plan, and the application for the alteration would result in the violation of a covenant, the application shall contain an agreement signed by all parties subject to the covenants, providing that the parties agree to terminate or alter the relevant covenants to accomplish the purpose of the alteration of the plat or final binding site plan;

5. A copy of the approved plat or final binding site plan sought to be altered, together with all recorded plat or binding site plan amendments or vacations; and

6. A recent (120 days) title report for each of the properties affected by the alteration that confirms the owner(s) signing the application hold title of the lands described and shown in the application area.

7. If the alteration is for a portion of the plat or final binding site plan, the applicant must demonstrate that the alteration will not violate the terms of plat or final binding site plan approval, or this Chapter.

8. An electronic version of all submittal documents, in a format acceptable to the City.

9. An application fee.

C. The following materials shall be submitted to the City for a complete Short Plat Alteration:

1. Date, name, address, and telephone number of the applicant or property owner;

2. The reason(s) for the proposed alteration;

3. Signatures of the majority of those persons having an ownership interest in the lots, tracts, parcels, sites, or divisions in the Short Plat proposed to be altered;

4. If the Short Plat is subject to restrictive covenants which were filed at the time of the approval of the Short Plat, and the application for the alteration would result in the

violation of a covenant, the application shall contain an agreement signed by all parties subject to the covenants, providing that the parties agree to terminate or alter the relevant covenants to accomplish the purpose of the alteration of the Short Plat;

5. A copy of the approved Short Plat sought to be altered, together with all previously recorded Short Plat amendments; and

6. A recent (120 days) title report for each of the properties affected by the alteration that confirms the owner(s) signing the application hold title of the lands described and shown in the application area.

7. If the alteration is for a portion of the Short Plat, the applicant must demonstrate that the alteration will not violate the terms of Short Plat approval, or this Chapter.

8. An electronic version of all submittal documents, in a format acceptable to the City.

9. An application fee.

106.07.060 Criteria for Approval.

A. Vacation Criteria for a full subdivision or binding site plan.

1. *Vacation.* The plat or binding site plan vacation may be approved, approved with conditions or denied after a written determination is made whether the public use and interest will be served by the vacation. The decision shall be supported by written findings and conclusions. If any portion of the land contained in the plat or binding site plan was dedicated to the public for public use and benefit, such land, if not already deeded to the City, shall be deeded to the City as a condition of approval, unless the decision-maker makes findings that the public use would not be served in retaining title to those lands. Easements established by a dedication are property rights that cannot be extinguished or altered without the approval of the easement owner or owners, unless the plat, binding site plan or other document creating the dedicated easement provides or an alternative method or methods to extinguish or alter the easement.

2. *Street Vacation.* When the vacation application is specifically for vacation of a City street, the procedures in EMC Section 12.05.015 and the procedures in RCW Chapter 35.79 shall be utilized. When the procedure is for the vacation of a plat or binding site plan together with the streets, the vacation procedure in this chapter shall be used, but this procedure cannot be used to vacate streets if prohibited under RCW Section 35.79.035 or the City's street vacation ordinance.

3. *Title to Vacated Property.* Title to the vacated property shall vest with the rightful owner as shown on the county records. If the vacated land is land that was dedicated to the public, for public use other than a road or street, and the decision maker has found that retaining title to the land is not in the public interest, title thereto shall vest with the person(s) owning the property on each side thereof, as determined by the decision maker. When the road or street that is to be vacated is contained wholly within the plat or binding site plan, and is part of the boundary of the subdivision or binding site plan, title to the vacated road or street shall vest with the owner(s) of property contained within the vacated subdivision or binding site plan.

B. Alteration Criteria for a full subdivision or binding site plan.

1. The alteration may be approved, approved with conditions or denied after a written determination is made whether the public use and interest will be served by the alteration. The decision shall be supported by written findings and conclusion.

2. If any land within the alteration area is part of an assessment district, any outstanding assessments shall be equitably divided and levied against the remaining lots, parcels or tracts, or be levied equitably on the lots resulting from the alteration.

3. If any land within the alteration contains a dedication to the general use of persons residing within the subdivision, such land may be altered and divided equitably between the adjacent properties.

16.07.070 Time Limitation for Final Decision. A full subdivision or binding site plan vacation or alteration application shall be approved, approved with conditions, or denied within one hundred-twenty (120) days after a complete application has been submitted, unless the applicant consents in writing to an extension of the 120-day time period.

16.07.080 Recording. After approval of the alteration or vacation, the City shall order the applicant to produce a revised drawing of the approved full subdivision or binding site plan alteration or vacation. The Council shall authorize the Mayor to sign the approved alteration or vacation. The City shall file the approved alteration or vacation with the County auditor at the applicant's cost. The alteration or vacation shall replace and supersede the existing lawful plat or final binding site plan for the property.

16.07.090 Alterations to a Short Subdivision

A. General Requirements.

1. Short subdivision alterations apply to those elements which are common to the entire plat.

2. An alteration to a portion of a recorded short plat replaces and supersedes the portion of the original short plat that is contained in the alteration.

3. Additional lots cannot be added except pursuant to RCW Section 58.17.060.

B. Required Written Findings and Determinations.

1. The Director shall inquire into the public use and interest proposed to be served by the establishment of the alteration, if any.

2. The application shall follow the Process II Administrative Action procedures pursuant to EMC Section 18.40.070.

3. A proposed short subdivision alteration shall not be approved unless the Director makes written findings that:

a. The alteration conforms to the requirements of RCW Chapter 58.17 and the provisions of this Title;

b. The items to be altered do not conflict with the goals and policies of the Comprehensive Plan, applicable community plan(s), and any applicable EMC or state laws; and

c. The public use and interest will be served as a result of the proposed alteration.

C. Approval.

1. The Director has the authority to approve or deny any proposed short subdivision and may impose additional or altered conditions and requirements as necessary to assure that the proposal conforms to the Comprehensive Plan, applicable community plan(s), other applicable EMC provisions, state laws, and the criteria contained in this Section.

2. Approvals shall include a note that states: "This altered short plat supersedes Lot(s) _____ of Short Plat No. _____" and a brief written narrative explaining what is being altered and the reason for such alteration, including identification of the specific change(s) to the recorded document.

3. Appeals from the decision of the Director or designee will be heard by the Hearing Examiner.

D. Recording.

1. After approval of the alteration, the City shall order the applicant to produce a final drawing for signatures and recording.

2. The same department signature blocks shall be provided on the proposed plat alteration as those listed on the original document.

3. The final document for recording shall be signed by the property owner(s).

4. The City shall file the approved alteration with the County auditor at the applicant's cost. The alteration shall replace and supersede the existing lawful Short Plat for the property.

Section 2. Publication.

This Ordinance shall be published by an approved summary consisting of the title.

Section 3. Severability.

If any section, sentence, clause or phrase of this Ordinance should be held to be unconstitutional by a court of competent jurisdiction, such invalidity or unconstitutionality shall not affect the validity or constitutionality of any other section, sentence, clause, or phrase of this Ordinance.

Section 4. Effective Date.

This Ordinance shall become effective five (5) days after publication as provided by law.

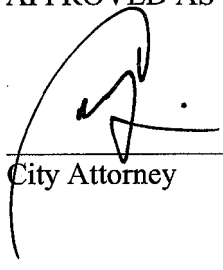
ADOPTED by the City Council of the City of Edgewood, signed by the Mayor and attested by the City Clerk in authentication of such passage on this 8th day of May, 2018.

MAYOR

ATTEST/AUTHENTICATED:

City Clerk

APPROVED AS TO FORM:



City Attorney

DRAFT ~~4405-0120-187~~

ORDINANCE NO. _____

AN ORDINANCE OF THE CITY OF EDGEWOOD, WASHINGTON, RELATING TO SUBDIVISIONS, ADDING PROCEDURES FOR ALTERATIONS and Vacations OF APPROVED ~~PLATS-Subdivisions~~ AND APPROVED BINDING SITE PLANS, DESCRIBING THE ELEMENTS OF A COMPLETE APPLICATION, CRITERIA FOR APPROVAL, EFFECT OF APPROVAL AND REQUIREMENTS FOR RECORDING, PURSUANT TO RCW 58.17.212 AND 58.17.215, ADDING A NEW CHAPTER 16.07 TO THE EDGEWOOD MUNICIPAL CODE.

WHEREAS, the Washington Subdivision Act (hereinafter the "Act") includes provisions and procedures for a vacation of subdivision and an alteration of subdivision under of approved plats (RCW Section 58.17.212 and 58.17.215, respectively); and

WHEREAS, the Act also allows municipalities to adopt procedures for binding site plans, consistent with RCW Section 58.17.035; and

WHEREAS, the City of Edgewood has adopted development regulations applicable to plats and binding site plans but does not have any procedures for the vacation and alteration of approved short plats, full subdivision plats, and binding site plans~~approved plats or binding site plans~~; and

WHEREAS, the City's SEPA Responsible Official has determined that this Ordinance is categorically exempt from SEPA as affecting only procedural and no substantive standards, pursuant to WAC Section 197-11-800(19); and

WHEREAS, on February 6, 2018, the Washington State Department of Commerce sent confirmation to the City that the procedural requirements in RCW 36.70A.106(1) were met; and

WHEREAS, on _____, February 26, 2018, the Planning Commission held a public hearing on this Ordinance and made a recommendation of _____ to the City Council; and

WHEREAS, the City Council considered this Ordinance during its regular City Council meetings on _____ and _____, Now, Therefore,
THE CITY COUNCIL OF THE CITY OF EDGEWOOD, WASHINGTON, ORDAINS
AS FOLLOWS:

Section 1. A new eChapter 16.07 is hereby added to the Edgewood Municipal Code (EMC), which shall read as follows:

Chapter 16.07
Subdivision Vacations and Alterations
of Approved Plats and Final Binding Site Plans.

Sections:

- 16.07.010 Purpose.**
- 16.07.020 Administration.**
- 16.07.030 Procedure.**
- 16.07.040 Additional Notice of Public Hearing**
- 16.07.0450 Requirements for a Complete Application.**
- 16.07.0560 Criteria for Approval.**
- 16.07.0670 Time Limitation for Final Decision.**
- 16.07.0780 Recording.**
- 16.07.090 Alterations to a Short Subdivision.**

16.07.010 Purpose. The purpose of this chapter is to regulate and allow vacations or alterations of approved ~~plats (approved short plats, and approved final full subdivision plats,)~~ and ~~approved final~~ binding site plans. It does not allow modification or revision of recorded Boundary Line Adjustments (BLA), preliminary subdivision approvals~~plats~~, or preliminary

Commented [JM1]: Should there be some reference in the earlier sections that directs the reader to this subsection? Just don't want there to be confusion on what part of the code is applicable...

binding site plans. -The procedure for vacation of plats does not apply to the vacation or alteration of any plat of state-granted tide or shore lands.

When the vacation application is specifically for a city street, the procedures for street vacations in RCW 35.79 RCW shall be utilized for the street vacation. -When the application is for the vacation of the plat or binding site plan together with the roads or streets, the procedure for vacation in this chapter shall be used, but vacations of streets subject to RCW 35.79.035 may not be made under this procedure.

16.07.020 Administration. The Director is authorized and directed to administer the provisions of this chapter. -The authority to approve, approve with conditions, or deny an approved plat or ~~and~~ final binding site plan vacations or alterations is granted to the Hearing Examiner after a public hearing.

16.07.030 Procedure. ~~The following steps~~ Steps 16.07.030.A-I shall be followed in the processing of approved plat and ~~or~~ final binding site plan vacation or alteration applications and administrative appeals shall be heard by City Council. ~~See EMC Section 16.07.090 for Alterations to a Short Subdivision.~~

A.	EMC 18.40.150	Determination of Complete Application;
B	EMC 18.40.180	Notice of Application;
C D.	EMC 20.05	SEPA (if required);
D C.	<u>EMC 18.30.050</u>	<u>Determination of Consistency;</u>
E.	EMC 18.40.190	Notice of Public Hearing;
F.	EMC 18.40.100(K)	Preparation of Staff Report;
G.	EMC 18.40.100(L)	Public Hearing;
H.	EMC 18.40.100(Q – R)	Notice of Decision; and
I.	EMC 18.40.100(T)	Hearing Examiner <u>Appeal</u> .

Commented [cm2]: In these blanks, insert the code sections relating to the procedure on the right.

Commented [KR3]: What does this mean?

Reply: DG changed to concurrency (EMC 18.105) and then changed back to consistency (EMC 18.30.050) IAW RCW 36.70B.040

Commented [cm4]: If the City Council makes the decision, there is no administrative appeal. If the Hearing Examiner makes a recommendation/decision, then the appeal is to the Council.

16.07.040 Additional Notice of Public Hearing. In addition to the notice required in EMC Section 16.07.030. Provided above, the City shall provide notice of an application for a full subdivision or binding site plan vacation or alteration to all owners of property within the subdivision not included in the ~~(excluding the owners of property submitting the application)~~, and as provided for in RCW 58.17.080 and RCW 58.17.090. -The notice shall establish the date of the public hearing.

16.07.0450 Requirements for a Complete Application. ~~The following materials shall be submitted to the City for a complete application:~~

A. The following materials shall be submitted to the City for a complete full subdivision or binding site plan Vacation Application:

1. Date, name, address, and telephone number of the applicant and or property owner;
2. The reason(s) for the proposed vacation;

3. Signatures of all parties having an ownership interest in the subdivision or that portion of the subdivision proposed to be vacated;

4. If the plat or binding site plan is subject to restrictive covenants which were filed at the time of the approval of the plat, and the application for the vacation would result in the violation of a covenant, the application shall include an agreement signed by all parties subject to the covenants, which provides that the parties agree to terminate or alter the restrictive covenants to accomplish the purpose of the vacation of the plat or portion thereof;

5. Acknowledgement that if any street is included in the application for a vacation, that the applicant shall be required to pay the amount contemplated in RCW 35.79.030, ~~if the vacation is granted pursuant to EMC Section 12.05.015;~~

6. A copy of the approved plat or binding site plan sought to be vacated, together with all plat or binding site plan amendments or vacations recorded since the date of the original approval;

7. A recent (120 days) title report for each of the properties affected by the vacation that confirms the owner(s) signing the application hold title of the lands described and shown in the application area.~~A recent title report for each property affected by the vacation, confirming that the title of the lands as described and shown in the proposed vacation area is in the name of the owner(s) signing the application;~~ and

8. If the vacation is for a portion of the plat or binding site plan, the applicant must demonstrate that the partial vacation will not violate the terms of plat or binding site plan approval or this Chapter.

9. Electronic version of all submittal documents, in a format acceptable to the City on optical disc, flash drive or downloadable from ftp site, in either Adobe PDF or Microsoft Word format.

10. An application fee ~~as established by City resolution.~~

B. The following materials shall be submitted to the City for a complete full subdivision or binding site plan Alteration Application.

1. Date, name, address, and telephone number of the applicant ~~and/or~~ property owner;

2. The reason(s) for the proposed alteration;

3. Signatures of the majority of those persons having an ownership interest in the lots, tracts, parcels, sites, or divisions in the plat or binding site plan proposed to be altered;

4. If the plat or final binding site plan is subject to restrictive covenants which were filed at the time of the approval of the plat or final binding site plan, and the application for the alteration would result in the violation of a covenant, the application shall contain an agreement signed by all parties subject to the covenants, providing that the parties agree to terminate or alter the relevant covenants to accomplish the purpose of the alteration of the plat or final binding site plan;

5. A copy of the approved plat or final binding site plan sought to be altered, together with all recorded plat ~~or~~ binding site plan amendments or vacations; and

6. A recent (120 days) title report for each of the properties affected by the ~~vacation~~alteration that ~~confirms that the~~ owner(s) signing the application hold title of the lands ~~as described and shown in the application~~proposed vacation area is in the name of the owner(s) signing the application.

Commented [cm5]: Also refer to the City's street vacation procedure. Does the City have one?

7. If the alteration is for a portion of the plat or final binding site plan, the applicant must demonstrate that the alteration will not violate the terms of plat or final binding site plan approval, or this Chapter.

8. An electronic version of all submittal documents, in a format acceptable to the City on optical disc, flash drive or downloadable from ftp site, in either Adobe PDF or Microsoft Word format.

9. An application fee.

C. The following materials shall be submitted to the City for a complete Short Plat Alteration:

1. Date, name, address, and telephone number of the applicant or property owner;

2. The reason(s) for the proposed alteration;

3. Signatures of the majority of those persons having an ownership interest in the lots, tracts, parcels, sites, or divisions in the Short Plat proposed to be altered;

4. If the Short Plat is subject to restrictive covenants which were filed at the time of the approval of the Short Plat, and the application for the alteration would result in the violation of a covenant, the application shall contain an agreement signed by all parties subject to the covenants, providing that the parties agree to terminate or alter the relevant covenants to accomplish the purpose of the alteration of the Short Plat;

5. A copy of the approved Short Plat sought to be altered, together with all previously recorded Short Plat amendments; and

6. A recent (120 days) title report for each of the properties affected by the alteration that confirms the owner(s) signing the application hold title of the lands described and shown in the application area.

7. If the alteration is for a portion of the Short Plat, the applicant must demonstrate that the alteration will not violate the terms of Short Plat approval, or this Chapter.

8. An electronic version of all submittal documents, in a format acceptable to the City.

9. An application fee.

106.07.0560 Criteria for Approval.

A. Vacation Criteria for a full subdivision or binding site plan.

1. *Vacation.* The plat or binding site plan vacation may be approved, approved with conditions or denied after a written determination is made whether the public use and interest will be served by the vacation. -The decision shall be supported by written findings and conclusions. -If any portion of the land contained in the plat or binding site plan was dedicated to the public for public use and benefit, such land, if not already deeded to the City, shall be deeded to the City as a condition of approval, unless the decision-maker makes findings that the public use would not be served in retaining title to those lands. -Easements established by a dedication are property rights that cannot be extinguished or altered without the approval of the easement owner or owners, unless the plat, binding site plan or other document creating the dedicated easement provides or an alternative method or methods to extinguish or alter the easement.

2. *Street Vacation.* When the vacation application is specifically for vacation of a City street, the ~~City's street vacation~~ procedures, in EMC Section 12.05.015 and the procedures in ~~RCW Chapter 35.79~~ ~~RCW~~ shall be utilized. -When the procedure is for the vacation of a plat or binding site plan together with the streets, the vacation procedure in this chapter shall be used, but this procedure cannot be used to vacate streets if prohibited under RCW Section 35.79.035 or the City's street vacation ordinance.

Commented [cm6]: Insert reference here to City's street vacation procedures.

3. *Title to Vacated Property.* Title to the vacated property shall vest with the rightful owner as shown on the county records. -If the vacated land is land that was dedicated to the public, for public use other than a road or street, and the ~~decision maker~~~~legislative authority~~ has found that retaining title to the land is not in the public interest, title thereto shall vest with the person(s) owning the property on each side thereof, as determined by the ~~decision maker~~~~legislative authority~~. -When the road or street that is to be vacated is contained wholly within the plat or binding site plan, and is part of the boundary of the subdivision or binding site plan, title to the vacated road or street shall vest with the owner(s) of property contained within the vacated subdivision or binding site plan.

B. *Alteration Criteria* for a full subdivision or binding site plan.

1. The alteration may be approved, approved with conditions or denied after a written determination is made whether the public use and interest will be served by the alteration. The decision shall be supported by written findings and conclusion.

2. If any land within the alteration area is part of an assessment district, any outstanding assessments shall be equitably divided and levied against the remaining lots, parcels or tracts, or be levied equitably on the lots resulting from the alteration.

3. If any land within the alteration contains a dedication to the general use of persons residing within the subdivision, such land may be altered and divided equitably between the adjacent properties.

16.07.0670 Time Limitation for Final Decision. A full subdivision or binding site plan vacation or alteration application shall be approved, approved with conditions, or denied within one hundred-twenty (120) days after a complete application has been submitted, unless the applicant consents in writing to an extension of ~~such~~the 120-day time period.

16.07.0780 Recording. After approval of the alteration or vacation, the City shall order the applicant to produce a revised drawing of the approved full subdivision or binding site plan alteration or vacation ~~of the short plat, final plat or final binding site plan.~~ -The Council shall authorize the Mayor to sign the approved alteration ~~or~~ vacation ~~of the short plat, final plat or final binding site plan.~~ -The City shall file ~~it~~the approved alteration or vacation with the County auditor at the applicant's cost. The alteration or vacation, and the same shall replace and supersede the existing lawful plat or final binding site plan for the property.

16.07.090 Alterations to a Short Subdivision

A. General Requirements.

1. Short subdivision alterations apply to those elements which are common to the entire plat.

2. An alteration to a portion of a recorded short plat replaces and supersedes the portion of the original short plat that is contained in the alteration.

3. Additional lots cannot be added except pursuant to RCW Section 58.17.060.

B. Required Written Findings and Determinations.

1. The Director shall inquire into the public use and interest proposed to be served by the establishment of the alteration, if any.

2. The application shall follow the Process II Administrative Action procedures pursuant to EMC Section 18.40.070.

3. A proposed short subdivision alteration shall not be approved unless the Director makes written findings that:

a. The alteration conforms to the requirements of RCW Chapter 58.17 and the provisions of this Title;

b. The items to be altered do not conflict with the goals and policies of the Comprehensive Plan, applicable community plan(s), and any applicable EMC or state laws; and

c. The public use and interest will be served as a result of the proposed alteration.

C. Approval.

1. The Director has the authority to approve or deny any proposed short subdivision and may impose additional or altered conditions and requirements as necessary to assure that the proposal conforms to the Comprehensive Plan, applicable community plan(s), other applicable EMC provisions, state laws, and the criteria contained in this Section.

2. Approvals shall include a note that states: "This altered short plat ~~or large lot division~~ supersedes Lot(s) _____ of Short Plat No. _____" and a brief written narrative explaining what is being altered and the reason for such alteration, including identification of the specific change(s) to the recorded document.

3. Appeals from the decision of the Director or designee will be heard by the Hearing Examiner.

D. Recording.

1. After approval of the alteration, the City shall order the applicant to produce a revised final drawing of the approved Short Plat alteration for signatures and recording.

2. The same department signature blocks shall be provided on the proposed plat alteration as those listed on the original document.

3. The final document for recording shall be signed by the property owner(s). The Council shall authorize the Mayor to sign the approved alteration.

34. The City shall file the approved alteration with the County auditor at the applicant's cost. The alteration shall replace and supersede the existing lawful Short Plat for the property.

Commented [JM7]: Mayor does not sign short plats. This suggested revision is more consistent with PCC 18F.20.030 D

Section 2. Publication. This Ordinance shall be published by an approved summary consisting of the title.

Section 3. Severability. If any section, sentence, clause or phrase of this Ordinance should be held to be unconstitutional by a court of competent jurisdiction, such invalidity or unconstitutionality shall not affect the validity or constitutionality of any other section, sentence, clause, or phrase of this Ordinance.

Section 3. Effective Date. This Ordinance shall become effective five (5) days after publication as provided by law.

ADOPTED by the City Council of the City of _____, signed by the Mayor and attested by the City Clerk in authentication of such passage on this ____ day of _____, 201__.

MAYOR

ATTEST/AUTHENTICATED:

City Clerk

APPROVED AS TO FORM:

City Attorney

EDGEWOOD PLANNING COMMISSION RECOMMENDATION:

RECOMMENDATION OF THE CITY OF EDGEWOOD PLANNING COMMISSION RELATING TO SUBDIVISIONS, ADDING PROCEDURES FOR ALTERATIONS AND VACATIONS OF APPROVED SUBDIVISIONS AND APPROVED BINDING SITE PLANS, DESCRIBING THE ELEMENTS OF A COMPLETE APPLICATION, CRITERIA FOR APPROVAL, EFFECT OF APPROVAL, AND REQUIREMENTS FOR RECORDING, PURSUANT TO RCW 58.17.212 AND 58.17.215, ADDING A NEW CHAPTER 16.07 TO THE EDGEWOOD MUNICIPAL CODE.

WHEREAS, the Washington Subdivision Act (hereinafter the “Act”) includes provisions and procedures for a vacation of subdivision and an alteration of subdivision under RCW Section 58.17.212 and 58.17.215, respectively; and

WHEREAS, the Act also allows municipalities to adopt procedures for binding site plans, consistent with RCW Section 58.17.035; and

WHEREAS, the City of Edgewood has adopted development regulations applicable to plats and binding site plans but does not have any procedures for the vacation and alteration of approved short plats, full subdivision plats, and binding site plans; and

WHEREAS, the City’s SEPA Responsible Official has determined that this Ordinance is categorically exempt from SEPA as affecting only procedural and no substantive standards, pursuant to WAC Section 197-11-800(19); and

WHEREAS, on February 6, 2018, the Washington State Department of Commerce sent confirmation to the City that the procedural requirements in RCW 36.70A.106(1) were met; and

WHEREAS, the Planning Commission held a Public Hearing to receive public testimony regarding the Proposed Code Amendment at their February 26, 2018 meeting; and

NOW, THEREFORE, IT SHALL BE ADVISED that the Planning Commission hereby makes the following recommendations:

1. The Planning Commission reviewed the proposed amendments to the development regulations and recommends City Council APPROVE, AS PRESENTED the proposal to add Chapter 16.07 to the Edgewood Municipal Code (EMC).

THIS RECOMMENDATION WAS APPROVED BY THE CITY OF EDGEWOOD PLANNING COMMISSION ON THE 26th DAY OF FEBRUARY 2018.



CITY OF EDGEWOOD
REQUEST FOR COUNCIL ACTION
Agenda Bill No.: AB18-022

Date: May 8, 2018

Title: 2018 Comprehensive Plan Final Docket

Attachments: 1) Project S22 LLC Application Materials
2) Uchida Farms Application Materials

Submitted by: Darren Groth, Community Development Director

Approved For Agenda by: Daryl Eidinger, Mayor

Recommendation: Staff recommends including both application requests on the Final Docket.

Fiscal Impact: None

Discussion

The City may consider amendments to its Comprehensive Plan once every year. Applications for Comprehensive Plan amendments are submitted before December 31st in order to be considered during the following year's amendment process. All applications submitted before the December 31st deadline are identified on the preliminary docket that is maintained by the Planning Director. After compiling the preliminary docket, the Director shall review the suggested amendments and prepare a report suggesting which amendments should be placed on the final docket. In 2017, the City received two applications that met the required deadline to be processed in 2018.

1) Project S22 LLC

The first application is a request to change the future land use map (FLUM) designation and zoning classification on approximately 5.15 acres currently designated Single-Family Moderate and zoned as Single-Family 3 (SF3). The applicant submitted the request named "Project S22 LLC" with the goal of expanding the abutting Town Center (TC) land use designation and TC zoning throughout the entire parcel. The subject property, identified with Parcel Number 0420107031, is currently split zoned between SF3 and TC. The property is located on 24th Street East approximately 435 feet east of Meridian Avenue East.

One of the stated objectives for adoption of the current Comprehensive Plan was to eliminate split zoned property in the City of Edgewood. Public meetings were held specifically to address this topic and the goal was included in the adoption ordinance. The subject property was not included in the City-wide rezoning in 2015 that accompanied the Comprehensive

Plan because of a 2012 Comprehensive Plan amendment that changed the split designation and zoning from TC and SF3 to Mixed Residential Moderate (MR2). The maps used to show the split zone lots did not include this site. The 2015 Comprehensive Plan Future Land Use Map, however, did not incorporate the 2012 amendment and the subject property was changed back to the split designation and zoning of TC and SF3. At the time of the 2012 request, the subject parcel was used as the septic drainfield area for the Lake Chalet apartment complex. The apartments have since connected to the sewer in Meridian Avenue, which opened the drainfield area for reuse.

Another objective of the Comprehensive Plan is to promote the development of a road network parallel to Meridian Avenue East. The City has adopted a parallel street network to improve access and circulation along the Meridian Avenue corridor and within the town center. Once completed, the new street connections will reduce the number of local trips on Meridian Avenue and the number of direct access points. The network is also intended to provide multiple access points to future commercial development and a dispersion of traffic for higher density residential developments. The request to extend the Town Center designation complies with this goal of the Comprehensive Plan.

2) *Uchida Farm LLC*

The second application submitted in 2017 for consideration of the 2018 annual Comprehensive Plan amendment cycle is colloquially called the Uchida Project. This request is to change the future land use designation and zoning classification on approximately 68.51 acres. The subject site is comprised of multiple parcels all currently classified as Moderate Density Residential on the Future Land Use Map and currently zoned Single-Family 3 (SF3). The applicant is seeking a designation change to Industrial on the FLUM and a zoning classification change to Industrial (I).

The entire request is comprised of 12 parcels owned by six property owners. Each of the property owners signed an affidavit to be a party to the requested application; however, the majority land owner is Uchida Farm LLC, which is the reason for the colloquial name. The property owners and their respective parcels are identified in the following table.

Owner	Parcel Numbers		
Uchida	0420163054	0420163055	0420163702
	0420163026	0420163047	0420163023
Canorro	0420175005	0420166003	
Reasonable Investments LLC [aka Novak]	0420162700		
Todd	0420175004		
Castan	0420163052		
8311 Ewood LLC	0420174047		

The majority of the requested area is contiguous; however, the 8311 Ewood LLC parcel (0420162700) does not adjoin the remainder parcels and is proposed as a rezoning island within the surrounding SF3. The proposed island of Industrial may create pressure to change the land use designation of other properties, which is an evaluation criteria for approval of any site-specific Comprehensive Plan amendment.

Similar to the first request, this subject area was also a topic of public discussion for the 2015 Comprehensive Plan update. The City held public input meetings to discuss the possibility for a FLUM designation change in this area. The updated plan did not change the designation; however, a Special Land Use Study Overlay was approved in the southwest portion of the city. A study has not yet been performed for any lands within this overlay. The inclusion of this request on the final docket would enable the applicant to perform a land use study on a portion of the overlay. In addition to any requirement for Comprehensive Plan amendment approval, the study should also address, at a minimum, the 10 items outlined in Goal LU.I.d.

Final Docket

The addition of a request to the final docket does not mean approval or assume action. The final docket allows the applicant the opportunity to provide enough supporting information to fully satisfy the criteria used to support the Comprehensive Plan amendments and associated zoning change. Once the docket is set, the City also performed a SEPA analysis of the docket and makes findings to support a decision. The findings are based on the requirements outlined in the Edgewood Municipal Code (EMC). In accordance with EMC Section 18.60.220, the Planning Commission shall review proposed Comprehensive Plan amendments under the following criteria to develop findings and conclusions to support a recommendation:

1. Whether the amendment conform to the Growth Management Act (Chapter 36.70A RCW);
2. Whether the amendment is consistent with and implements the City's Comprehensive Plan, including the goals, policies and implementation strategies of the various elements of the plan;
3. Whether circumstances related to the proposed amendment have substantially changed since the adoption of the City's Comprehensive Plan;
4. Whether the assumptions upon which the City's Comprehensive Plan is based are no longer valid, or new information is available which was not considered during the adoption process;
5. Whether the amendment reflects current, widely held values of the residents of the city;

6. Whether the amendment meets concurrency requirements for transportation and do not adversely affect adopted level of service standards for other public facilities and services;
7. The amendment will not result in probable significant adverse impacts to the City's transportation network, capital facilities, utilities, parks and environmental features that cannot be mitigated, and will not place uncompensated burdens upon existing or planned service capabilities;
8. That the subject parcels are physically suitable for the requested land use designation and the anticipated land use development, including, but not limited to, the following:
 - a. access;
 - b. provision of utilities; and
 - c. compatibility with existing and planned surrounding land uses;
9. The amendment will not create pressure to change the land use designation of other properties, unless the change for other properties is in the long-term best interests of the city as a whole;
10. The amendment does not materially affect the land use and population growth projections that are the bases of the comprehensive plan;
11. The amendment is consistent with any applicable county-wide policies for the city and any other applicable interjurisdictional policies or agreements, and any other local, state or federal laws.

Additionally, the request should comply with EMC Chapter 18.40 to ensure the associated zoning classification is analyzed for the following:

1. Consistency with the existing Comprehensive Plan;
2. Consistency with the purpose of the proposed zoning district;
3. Consistency between zone criteria and area characteristics;
4. Zoning history and precedential effect. Previous and potential zoning changes both in and around the area identified in the application shall be examined;
5. The impact of more intense zones on less intense zones or industrial and commercial zones on other zones shall be minimized by the use of transitions or buffers, if possible. A gradual transition between zoning categories, including height limits, is preferred. Physical buffers may provide an effective separation between different uses and intensities of development. The following elements may be considered as buffers:
 - a. Natural features including but not limited to topographical breaks, lakes, streams, and ravines;
 - b. Major traffic arterials and railroad tracks;
 - c. Distinct change in street layout and block orientation;
 - d. Open space and greenspaces;
6. Zone Boundaries.
 - a. In establishing boundaries, the following elements shall be considered:

- i. Physical buffers as described in subsection (B)(5) of this section; and
 - ii. Platted lot lines.
- b. b. Boundaries between commercial and residential areas shall generally be established so that commercial uses face each other across the street on which they are located, and face away from adjacent residential areas. An exception may be made when physical buffers can provide a more effective separation between uses;
- 7. Height Limits. In general, height limits greater than 35 feet should be limited to areas where higher height limits would be consistent with the comprehensive plan or where the designation would be consistent with the existing built character of the area;
- 8. Impact Evaluation. The evaluation of the changes that would result from approval of the application shall consider the possible negative and positive impacts on the affected area and its surroundings. Factors to be examined include, but are not limited to, the following:
 - a. Housing;
 - b. Public services;
 - c. Environmental factors, such as noise, air and water quality, terrestrial and aquatic flora and fauna, glare, odor, shadows and energy conservation;
 - d. Pedestrian safety;
 - e. Manufacturing activity;
 - f. Employment activity;
 - g. Character of areas recognized for architectural or historic value;
 - h. Shoreline view, public access and recreation;
 - i. Service Capacities. Development which can be reasonably anticipated based on the proposed development potential shall not exceed the service capacities which can reasonably be anticipated in the area, including: street access to the area; street capacity in the area; transit service; parking capacity; utility and sewer capacity; shoreline navigation;
- 9. Changed Circumstances. Consideration of changed circumstances shall be limited to elements or conditions included in the criteria for the relevant zone designations in the Zoning Code;
- 10. Critical Areas. If the area is located in or adjacent to a critical area, the effect of the rezone on the critical area shall be considered.

RECEIVED

DEC 27 2017

City of Edgewood

City of Edgewood

2224 104th Avenue East, Edgewood, WA 98372-1513

PH: (253) 952-3299 ♦ Fax: (253) 952-3537



FOR STAFF USE ONLY

Application Year: _____

Application No.: 17-1550

Fee Required?: Yes ___ No ___

COMPREHENSIVE PLAN AMENDMENT APPLICATION

SUBMITTAL REQUIREMENTS

Complete this application, provide all supporting documents, and submit to the Department of Community Development. **Your proposal will be processed beginning in the month of January following this submittal.** A fact sheet is attached that explains the Comprehensive Plan Amendment Process.

Name: Project S22 LLC

Phone: 1-206-923-8940

Address: 18605 17th Ave NW Shoreline, WA 98177

1. Does the amendment request(s) concern a specific property? YES ☒ NO ☐
2. Is this amendment request for a change in a land use designation? YES ☒ NO ☐
3. Are you the owner or authorized agent of the property? YES ☒ NO ☐
4. Provide a description or a map of the area that this application affects:
APN#042 01 07 030, 042 01 07 031. Land use zone change from SF-3 to TC. See site plan exhibit.
5. Provide a reference to the section(s) of the Comprehensive Plan that you propose to amend, including the page – if applicable (i.e., Comp Plan, Page xx, Line xx). _____
Change to zoning map/ land use map. Page 23 in Comprehensive Plan.
6. Provide proposed amendatory language. Attach separate sheet(s) if necessary. _____
na
7. Explain the reason(s) for this amendment proposal. _____
To allow for increased density zone (TC) adjacent to TC zone. See site plan exhibit.
8. Please describe how your proposed amendment meets the following selection criteria. Use a separate sheet(s) if necessary: _____

- a. Was this ~~proposed amendment denied during~~ a previous Comprehensive Plan review cycle: YES ☐ NO ☒ If yes, briefly explain why (if known):

- b. Explain how the proposed amendment advances the goals and policies of the

~~Comprehensive~~ The requested land use is an extension of adjacent compatible land uses. The current parcel is a mixed TC/SF-3 Plan: ~~The request will make the entire parcel TC, which is the only natural place to increase density. It will protect the current SF-3 ar~~
~~zoning for the rest of the city. It will will encourage pedestrian friendly neighborhood development and aligns with the goals of th~~
~~meridian corridor providing multiple urban housing types and community connectivity/growth in the cities core.~~

- c. Explain how the proposed amendment is consistent with the goals of the Growth Management Act: The project is urban infill - taking place in existing urban area with
surrounding infrastructure in place.

- d. Does the proposed amendment have a relationship to any other City codes and /or regulations: na

- e. What are the cumulative effects of this proposed amendment to the Comprehensive Plan:

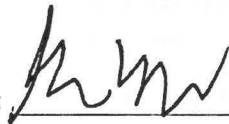
The project supports the goals and objects of the Comprehensive Plan encouraging
~~development along the TC zone, providing pedestrian friendly space, respects the natural~~
environment and open space and is designed to fit the neighboring community character.


Applicant's Signature

12/27/17
Date

Property Owner's Authorized Agent: If you are the property owner's agent, you are required to provide a notarized letter from the property owner authorizing submittal of this application.

I HEREBY CERTIFY THAT I HAVE READ AND EXAMINED THIS APPLICATION AND KNOW THE SAME TO BE TRUE UNDER PENALTY OF PERJURY BY THE LAWS OF THE STATE OF WASHINGTON, AND I AM AUTHORIZED TO MAKE THIS APPLICATION AS THE AGENT OF THE PROPERTY OWNER.

Signature: 

Date: 12/24/17

Print Name: George Webb

Phone: 1-206-923-8940

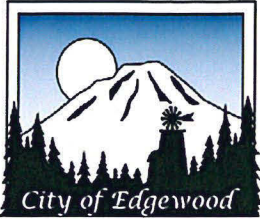


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DEC 27 2017

City of Edgewood

ENVIRONMENTAL CHECKLIST



Department of Community Development

2224 104th Ave E
Edgewood, WA 98372
253-952-3299

FILE NUMBER: 17-1550

Purpose of checklist:

The State Environmental Policy Act (SEPA), chapter 43.21C RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the agency identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the agency decide whether an EIS is required.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an EIS. Answer the questions briefly, with the most precise information known, or give the best description you can.

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write "do not know" or "does not apply." Complete answers to the questions now may avoid unnecessary delays later.

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

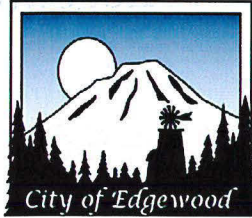
Use of checklist for nonproject proposals:

For nonproject proposals complete this checklist and the supplemental sheet for nonproject actions (Part D). The lead agency may exclude any question for the environmental elements (Part B) which they determine do not contribute meaningfully to the analysis of the proposal.

For nonproject actions, the references in the checklist to the words "project," "applicant," and "property or site" should be read as "proposal," "proposer," and "affected geographic area," respectively.

ENVIRONMENTAL CHECKLIST

2



Department of Community Development

2224 104th Ave E
Edgewood, WA 98372
253-952-3299

FILE NUMBER: _____

TO BE COMPLETED BY APPLICANT

A. BACKGROUND

1. Name of Project Lake Chalet Mixed Use Development		
2. NAME OF APPLICANT Project S22 LLC		
3. CONTACT PERSON Freeman Fong	PHONE 425-595-3456	EMAIL ffong@sh-architecture.com
ADDRESS (Street, City, State, Zip) 16771 NE 80th Street, Suite 110, Redmond, WA 98052		
4. DATE CHECKLIST PREPARED 12.11.17		
5. AGENCY REQUESTING CHECKLIST Edgewood Planning		

6. Proposed timing or schedule (including phasing, if applicable)

1. Submit Comprehensive Plan Amendment prior to 12.31.17 - to change existing zone from SF-3 to TC.
2. Following approval of the above - submit Design Review/ Site development application 01.01.19
3. Begin Construction following design review/ completion of Construction Documents. 04.01.19

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

No

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

1. Stormwater Detention/ infiltration Plan.
2. Tree Preservation Plan
3. Wetlands Analysis Report

ENVIRONMENTAL CHECKLIST

3

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

no

10. List any government approvals or permits that will be needed for your proposal, if known.

Do not know

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

The project is composed of 106 apartment units in 3, 4-story buildings with 37 free-standing cottages on a 10.2 acre site. A change of the existing land use from SF-3 to TC - approximately 4.5 aces is being requested.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

Major cross streets are Meridian Ave. E. and 24th St. E. The property is located east of Lake Chalet Park Apartments along 24th st E. Lake Chalet is adjacent to the property along the SE property Line.

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site (circle one): Flat, rolling, hilly, steep slopes, mountainous, other

hilly-slopes towards lake chalet

b. What is the steepest slope on the site (approximate percent slope)?

23%

ENVIRONMENTAL CHECKLIST

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c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.

not known

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

no

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.

not known

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

yes. during construction, some erosion may occur.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

42%

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

Straw erosion blankets and wattles will be employed as needed to prevent erosion and stabilize slopes during construction.

2. Air

a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.

only standard residential emissions

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

no

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

none

ENVIRONMENTAL CHECKLIST

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3. Water

a. Surface:

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

Yes. Lake - Lake Chalet

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

Yes. The residential buildings are 168'-0" from the edge of the water. This is outside the required 150'-0" water and wetland buffer zone. A community park with sidewalks and benches will be incorporated into the 100'-0" wetland buffer zone.

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

na

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

no

5) Does the proposal lie within a 100-year flood plain? If so, note location on the site plan.

not known

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

no

b. Ground:

ENVIRONMENTAL CHECKLIST

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1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well? Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.

no.

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals...; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

na

c. Water runoff (including storm water):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

Runoff from roads, parking, and building roofs. On-site storm water detention is planned to mitigate this.

2) Could waste materials enter ground or surface waters? If so, generally describe.

no

3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

Yes. The placement of buildings and parking lots will change the sites drainage pattern.

d. Proposed measures to reduce or control surface, ground, runoff water, and drainage pattern impacts, if any:

2 on-site stormwater retention systems will be installed to decrease runoff

4. Plants

a. Check the types of vegetation found on the site:



Deciduous tree: Alder, maple, aspen, other

ENVIRONMENTAL CHECKLIST

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- ☒ Evergreen tree: Fir, cedar, pine, other
- ☒ Shrubs
- ☒ Grass
- ☐ Pasture
- ☐ Crop or grain
- ☐ Orchards, vineyards or other permanent crops.
- ☒ Wet soil plants: Cattail, buttercup, bullrush, skunk cabbage, other
- ☐ Water plants: Water lily, eelgrass, milfoil, other
- ☐ Other types of vegetation

b. What kind and amount of vegetation will be removed or altered?
not known

c. List threatened and endangered species known to be on or near the site.
not known

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:
Landscaping planned will incorporate native vegetation and climate appropriate trees and shrubs in addition to preserving existing mature trees.

e. List all noxious weeds and invasive species known to be on or near the site.
not known

5. Animals

a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site. Examples include:

Birds: Hawk, heron, eagle, songbirds, other:
not known

Mammals: Deer, bear, elk, beaver, other:
not known

Fish: Bass, salmon, trout, herring, shellfish, other:
not known

ENVIRONMENTAL CHECKLIST

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b. List any threatened and endangered species known to be on or near the site.

not known

c. Is the site part of a migration route? If so, explain.

not known

d. Proposed measures to preserve or enhance wildlife, if any:

wetland buffer will be preserved along with some of the larger tree specimens on site.

e. List any invasive animal species known to be on or near the site.

not known

6. Energy and natural resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Electric Heating, Cooling,
Natural Gas. Water Heater, Cooking, Dryer

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

no.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

Energy efficient appliances and mechanical systems are being considered

7. Environmental health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

not known

ENVIRONMENTAL CHECKLIST

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1) Describe any known or possible contamination at the site from present or past uses.

do not know

2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.

not known

3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.

short-term diesel fumes from construction equipment

4) Describe special emergency services that might be required.

none

5) Proposed measures to reduce or control environmental health hazards, if any:

none

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

none

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

long-term increased traffic, short-term construction activity noise (6 am-5 pm)

3) Proposed measures to reduce or control noise impacts, if any:

none

8. Land and shoreline use

a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.

3.8 acres is the existing Lake Chalet apartment complex. The remainder of the site is undeveloped. The existing land use is SF-3 and TC. The proposed land use is TC. No adjacent land uses will be affected.

b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?

no

1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how:

no

c. Describe any structures on the site.

There are 6, 2-story apartment buildings currently on site.

d. Will any structures be demolished? If so, what?

no, they will remain.

e. What is the current zoning classification of the site?

TC and SF-3

ENVIRONMENTAL CHECKLIST

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f. What is the current comprehensive plan designation of the site?

SF-3

g. If applicable, what is the current shoreline master program designation of the site?

not known

h. Has any part of the site been classified as a critical area by the city or county? If so, specify.

not known

i. Approximately how many people would reside or work in the completed project?

Approximately 530 people.

j. Approximately how many people would the completed project displace?

none

k. Proposed measures to avoid or reduce displacement impacts, if any:

na

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

With the exception of the land use change, the project intends to comply with the Comprehensive plan and City of Edgewood Municipal Code

m. Proposed measures to reduce or control impacts to agricultural and forest lands of long-term commercial significance, if any:

na

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

106 apartment units (one and two bedrooms) . 37 cottages (3 bedrooms). middle income housing

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

na

c. Proposed measures to reduce or control housing impacts, if any:

none

10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

Apartment building: 55'-0"

Cottages: 28'-0"

Principal materials: Fiber Cement siding

b. What views in the immediate vicinity would be altered or obstructed?

No adjacent property views will be obstructed. Neighboring home views will be looking at the new cottages instead of the unimproved, vegetated lot.

c. Proposed measures to reduce or control aesthetic impacts, if any:

Required setbacks and landscape buffers along adjacent residential lots to be implemented.

11. Light and glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

no uncontrolled light glare proposed other than required street and parking lot lighting.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

no

ENVIRONMENTAL CHECKLIST

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c. What existing offsite sources of light or glare may affect your proposal?

none

d. Proposed measures to reduce or control light and glare impacts, if any:

none

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

Edgewood Community Park, Edgemont Junior High Track,

b. Would the proposed project displace any existing recreational uses? If so, describe.

no

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

na

13. Historic and cultural preservation

a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers? If so, specifically describe.

no

b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation. This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near

ENVIRONMENTAL CHECKLIST

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the site? Please list any professional studies conducted at the site to identify such resources.

no

c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.

none

d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.

none

14. Transportation

a. Identify public streets and highways serving the site or affected geographic area, and describe proposed access to the existing street system. Show on site plans, if any.

24th Street E runs along the North side of site. 103rd Ave Ct. E will be extended across the site and connect to 104th Ave. E.

b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?

School bus stop proposed along 24th street E along the North side of the site. Existing city bus stop located at intersection of 24th and Meridian Ave.

c. How many additional parking spaces would the completed project or nonproject proposal have? How many would the project or proposal eliminate?

Additional 224 parking stalls. No existing parking will be eliminated.

d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).

Yes. 103rd Ave Court E will be extended across the site. Crosswalk will be installed across 24th St. East at the intersection of 24th St. East and 103rd Ave Court E.

e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

Project is located near Lake Chalet. No rail or air transportation is in the vicinity

f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate

ENVIRONMENTAL CHECKLIST

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when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?

not known

g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.

no

h. Proposed measures to reduce or control transportation impacts, if any:

Traffic study will be conducted

15. Public services

a. Would the project result in an increased need for public services (for example: Fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.

Yes, there will be an increase in density/ development requiring access to the above mentioned public services.

b. Proposed measures to reduce or control direct impacts on public services, if any.

Provide a safe and well lit site for security and tenant safety. Fire Protection as required by code. School bus stop and crosswalk for safety.

16. Utilities

a. Circle utilities currently available at the site: Electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.

Electricity, Natural Gas, Water, Refuse Service, Telephone exists on part of the site

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

Electricity. Provided by:

Natural Gas Provided by:

Water Provided by:

Refuse Provided by:

Telephone provided by:

ENVIRONMENTAL CHECKLIST

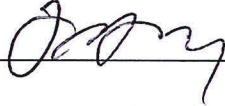
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C. SIGNATURE

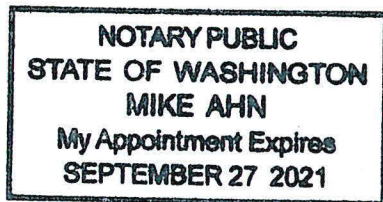
The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

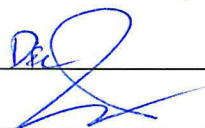
I, Freeman Fong being duly sworn, declare that I am the contract purchaser, agent or owner of the property involved in this application, and under penalty of perjury by the laws of the state of Washington certify, that the foregoing statements and answers herein contained and the information herewith submitted are true and correct to the best of my knowledge and belief.

Dated : 12/27/17

Signature : 

Subscribed and sworn to before me this 27th day of Dec, 2017.




Notary Public in and for the State of Washington

Residing at Leppan, WA

Commission Expires 9/27/21

D. SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS

(do not use this sheet for project actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

Proposed measures to avoid or reduce such increases are:

ENVIRONMENTAL CHECKLIST

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2. How would the proposal be likely to affect plants, animals, fish, or marine life?

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

3. How would the proposal be likely to deplete energy or natural resources?

Proposed measures to protect or conserve energy and natural resources are:

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, flood plains, or prime farmlands?

Proposed measures to protect such resources or to avoid or reduce impacts are:

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

Proposed measures to avoid or reduce shoreline and land use impacts are:

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

Proposed measures to reduce or respond to such demand(s) are:

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

Credits

Statutory Authority: RCW 43.21C.110. WSR 16-13-012 (Order 15-09), S 197-11-960, filed 6/2/16, effective 7/3/16. Statutory Authority: RCW 43.21C.110 and RCW 43.21C.100 [43.21C.170]. WSR 14-09-026, (Order 13-01), S 197-11-960, filed 4/9/14, effective 5/10/14; Statutory Authority: RCW 43.21C.110. WSR 13-02-065 (Order 12-01), S 197-11-960, filed 12/28/12, effective 1/28/13; WSR 84-05-020 (Order DE 83-39), S 197-11-960, filed 2/10/84, effective 4/4/84.

Current with amendments adopted through the 17-13 Washington State Register dated, July 5, 2017.

WAC 197-11-960, WA ADC 197-11-960

End of Document

HOW PROPOSED AMENDMENT AND ASSOCIATED DEVELOPMENT PROPOSAL,
CONFORM TO, CONFLICT WITH, OR RELATE TO THE CRITERIA SET FORTH IN EMC

18.60.220

18.60.220 The planning commission shall review the proposed amendments to the comprehensive plan and development regulations under the following criteria to develop findings and conclusions to support a recommendation:

A. All Amendments. All of the comprehensive plan amendments shall be reviewed under the following criteria:

1. Whether the proposed amendment(s) conform to the Growth Management Act (Chapter [36.70A RCW](#));

The change from SF-3 to TC conforms to the Growth Management Act. For example, the proposed development will encourage urban growth in a consolidated manner, developing inner center (urban infill) and reduce sprawl. Because the development is in the urban area, people will also have access to multimodal transportation systems. This meets the Growth Management Act in providing design and layout that shape the City into more livable and healthy spaces.

We are able to provide open space, trails and bikeways within the development. Even with the buffer zone for the environmental critical area adjacent Lake Chalet, we will be able to create a mini-park with walkways, seating and view to the lake. This also meets with the Growth Management Act in its planning goal to retain open space, enhance recreational opportunities, and develop parks and recreation facilities.

2. Whether the proposed amendment(s) are consistent with and implement the city's comprehensive plan, including the goals, policies and implementation strategies of the various elements of the plan;

The proposed amendment will maintain the small-town character, ambiance and charm of the City of Edgewood as per the Comprehensive Plan. We're doing this by maintaining the buffer from Lake Chalet and using it as a mini-park. We are also providing additional open space, trails and bikeways throughout the new community. The proposed amendment is an urban infill that also capitalizes the opportunities offered by the proposed TC zone development – commercial amenities, open space and outdoor activities – and encourages the Comprehensive Plan's general goal of increased commercial use. Our proposal concentrates the growth of multi-family housing within the City Urban Center that is zoned for TC and protects future growth from sprawling into the SF-3 and SF-2 zones. Portions of our site is already zoned TC.

3. Whether circumstances related to the proposed amendment(s) and/or the area in which it is located have substantially changed since the adoption of the city's comprehensive plan;

The population actually decreased from 2011 to 2012, which is commonly attributed to the recession. The current zoning policies are based on the drop in population. However, the recent population growth in the City of Edgewood may affect future zoning policies. There are large multi-family developments being built to both west

and north of the Lake Chalet Development to serve the growing population in the City of Edgewood. Our proposal to increase the density from SF-3 to TC will only serve the growing population, where there is already high density, as well as sustaining the small-town character, ambiance and charm in the surrounding City of Edgewood in accordance with the comprehensive plan, as mentioned before.

4. Whether the assumptions upon which the city's comprehensive plan is based are no longer valid, or whether new information is available which was not considered during the adoption process or any annual amendments of the city's comprehensive plan; and

See question A2.

5. Whether the proposed amendment(s) reflects current, widely held values of the residents of the city.

The proposed amendment from SF-3 to TC reflects the values of the residents. There appears to be a demand for multi-family housing due to the number of these building types being constructed in the central core of the City. Portions of the parcel is already zoned TC and it is the natural place to increase density. So there it is a natural to make the rest of the parcel TC with little impact to the City. It concentrates the higher density where it should.

- B. Amendments for Site-Specific Proposals. In addition to the above, any proposal for a site-specific development or amendment shall be reviewed under the following criteria:

1. Whether the proposed site-specific amendment(s) meets concurrency requirements for transportation and does not adversely affect adopted level of service standards for other public facilities and services (e.g., police, fire and emergency medical services, parks, fire flow and general governmental services);

The proposed amendment from SF-3 to TC will meet concurrency requirements for transportation and does not adversely affect any other public facilities and services. A concern might be overtaxing public services such as fire and emergency medical services by creating more density. We don't adversely affect this because the overall density in the Lake Chalet Development will not exceed the maximum density allowed on the development.

2. Any proposed site-specific amendment(s) will not result in probable significant adverse impacts to the city's transportation network, capital facilities, utilities, parks and environmental features that cannot be mitigated, and will not place uncompensated burdens upon existing or planned service capabilities;

Our initial design proposal has confirmed that there will be no adverse impacts to the city's transportation network, capital facilities, utilities and parks because the project does not require more facilities than it did in its original zoning. We even are able to provide open space, buffer from Lake Chalet (while utilizing the buffer as a park with trails, seating and other amenities), trails and bikeways; furthering such things as the transportation network, capital facilities, utilities, parks and environmental features.

3. In the case of a site-specific amendment(s) to the comprehensive plan's land use map, that the subject parcels are physically suitable for the requested land use designation and the anticipated land use development, including, but not limited to, the following: (a) access; (b) provision of utilities; and (c) compatibility with existing and planned surrounding land uses;

The Lake Chalet Development will provide a new north to south road, 103rd Avenue East, which will run north-south through the property, in compliance with Ordinance No. 07-0279, implemented on February 6, 2007, will provide access for the development. Utilities will be provided from 24th Avenue S on the north. The amendment will have minimal impact on the SF-3 community surrounding the Lake Chalet Development on the east and south. The area north of the 24th Avenue S has been rezoned for the new City of Edgewood City Hall. To the east of the City Hall, the property is zoned SF-3 but 24th Avenue S provides a natural buffer to the Lake Chalet Development. The requested amendment area with a rezoning of TC will provide higher, more compatible, density to the City Hall than would the current SF-3. Our amendment will not have an adverse impact on the area.

4. The proposed site-specific amendment(s) will not create pressure to change the land use designation of other properties, unless the change of land use designation for other properties is in the long-term best interests of the city as a whole;

We do not anticipate the change from SF-3 to TC on the east portion of the Lake Chalet Development will create pressure on the City of Edgewood to change land use designations on adjacent properties. The TC zone to the west of the property wouldn't prefer to downzone to an MR-2. On the southeast portion, adjacent the Lake Chalet Development is public property. This property is complimented, rather than pressured to change by the development. All the properties to the south of the Lake Chalet Development are single-family lots that have already been developed with newly built homes. It isn't anticipated that these properties would want to rezone due to the infeasibility. On the northeast of the Lake Chalet Development are small SF-3 properties that are owned by individuals. While we do not believe because of the size of the properties and the difficulty inherent in the property owners having to work together to request rezoning, but we also recognize that it may be in the City's best long-term interests to change the northeast portion of this development to MR-2 or even TC due to the increased traffic on 24th Avenue South initiated by the building of the City Hall and the Ordinance No. 07-0279 which encourages accessibility to the City's facilities and services. The properties east of the City Hall and across the street to the north of the Lake Chalet Development is zoned SF-3, but because it sits across 24th Avenue South, a busy street, we expect that street to create a natural barrier between higher density and single-family zones. Thus, it shouldn't create pressure to rezone to TC.

5. The proposed site-specific amendment(s) does not materially affect the land use and population growth projections that are the basis of the comprehensive plan;

The population growth projection and land use will only minimally change with the proposed site-specific amendment. It provides increased density to TC since it will be adjacent to a TC zone and is in the same block bordering Meridian. It does not materially affect the basis of the comprehensive plan; for example, the area will still mainly support housing, concentrates higher density in the center of the city and many

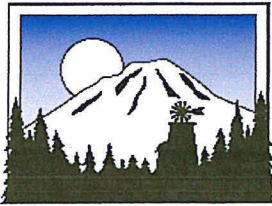
of the Comprehensive Plan's goals are being implemented otherwise. The rezoning will increase density without affecting existing pockets of existing SF-2 and SF-3 in the remainder of the City.

6. If within an incorporated urban growth area (UGA), the proposed site-specific amendment(s) does not materially affect the adequacy or availability of urban facilities and services to the immediate area and the overall UGA;

The adequacy or availability of urban facilities and services might be affected if amended density exceeded what's currently allowed on the property. But the Comprehensive Plan set forth already takes into account the possible density growth within the subject parcels, thus our site-specific amendment does not does not materially affect the adequacy or availability of urban facilities and services to the immediate area and the overall UGA. Our request to upzone to TC is in the urban growth area.

7. The proposed amendment(s) is consistent with any applicable county-wide policies for the city and any other applicable interjurisdictional policies or agreements, and any other local, state or federal laws. (Ord. 17-506 § 2).

The amendment, changing the zoning from SF-3 to TC, is consistent with all applicable county-wide policies for the city and any other applicable interjurisdictional policies or agreements, and any other local, state or federal laws. It is adjacent the urban growth area and other high-density developments.



City of Edgewood

2224 104th Avenue East, Edgewood, WA 98372-1513
PH: (253) 952-3299 ♦ Fax: (253) 952-3537

FOR STAFF USE ONLY

Application Year: 2017
Application No.: 17-1549
Fee Required?: Yes X No

COMPREHENSIVE PLAN AMENDMENT APPLICATION

RECEIVED

DEC 27 2017

SUBMITTAL REQUIREMENTS

City of Edgewood

Complete this application, provide all supporting documents, and submit to the Department of Community Development. **Your proposal will be processed beginning in the month of January following this submittal.** A fact sheet is attached that explains the Comprehensive Plan Amendment Process.

Name: Uchida Farm LLC

Phone: (253) 848-6187

Address: 8819 Valley Ave. E., Edgewood, WA 98371

1. Does the amendment request(s) concern a specific property? YES ☒ NO ☐

2. Is this amendment request for a change in a land use designation? YES ☒ NO ☐

3. Are you the owner or authorized agent of the property? YES ☒ NO ☐

4. Provide a description or a map of the area that this application affects:

Please refer to attached Project Narrative including parcel map and Conceptual Site Plan.

5. Provide a reference to the section(s) of the Comprehensive Plan that you propose to amend, including the page – if applicable (i.e., Comp Plan, Page xx, Line xx). The applicant proposes to amend the

Official Future Land Use Map, adopted June 2015, Page 23.

6. Provide proposed amendatory language. Attach separate sheet(s) if necessary. Please refer to the
attached Project Narrative for specific Land Use Map amendment language.

7. Explain the reason(s) for this amendment proposal. To rezone the subject properties' plan designation from single-family
residential to industrial. Please refer to attached Project Narrative for details.

8. Please describe how your proposed amendment meets the following selection criteria. Use a separate sheet(s) if necessary: Please refer to responses in the attached Project Narrative.

- b. Explain how the proposed amendment advances the goals and policies of the Comprehensive

c. Explain how the proposed amendment is consistent with the goals of the Growth Management Act: Please refer to the attached Project Narrative for a detailed response.

- e. What are the cumulative effects of this proposed amendment to the Comprehensive Plan:

Monica A. White
Applicant's Signature

Property Owner's Authorized Agent: If you are the property owner's agent, you are required to provide a notarized letter from the property owner authorizing submittal of this application.

Signature: _____ Date: _____

Print Name: _____

Phone: _____

Project Title:

Uchida Logistics Center
Edgewood, WA

Client:

Job Number:

17-040

Issue Set and Date:

Preliminary Design
December 2017

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Revisions:

Sheet Title:

CONCEPTUAL
SITE PLAN

Designed by: B. Ludwig

Drawn by: B. Ludwig

Checked by: G. Anderson

Sheet Number:

A0.1
1 of 1 Sheets

Project Information

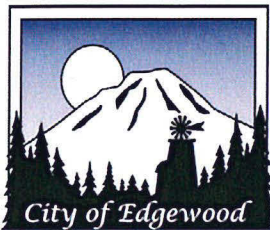
Gross Site Area = 66.11 Acres (2,880,120 SF)
Onsite Assumed Buffer Area = 17.77 Acres (774,390 SF)
Useable Development Area = 48.34 Acres (2,105,730 SF)

CONCEPTUAL SITE PLAN

Scale: 1"=0" = 120'



ENVIRONMENTAL CHECKLIST



Department of Community Development

2224 104th Ave E
Edgewood, WA 98372
253-952-3299

RECEIVED

DEC 27 2017 ²

City of Edgewood

FILE NUMBER: **17-1549**

TO BE COMPLETED BY APPLICANT

A. BACKGROUND

1. Name of Project Uchida Farm LLC		
2. NAME OF APPLICANT Minoru (Buddy) Uchida		
3. CONTACT PERSON Joel Howitt, Project Planner	PHONE (425) 251-6222	EMAIL jhowitt@barghausen.com
ADDRESS (Street, City, State, Zip) 18215 72nd Avenue S, Kent WA 98032		
4. DATE CHECKLIST PREPARED December 23, 2017		
5. AGENCY REQUESTING CHECKLIST City of Edgewood, WA		

6. Proposed timing or schedule (including phasing, if applicable)

Not applicable at this time; the schedule and/or phasing of future development activity will be determined at a later date, based on project-specific needs and City of Edgewood approval process and code requirements. Any examples of proposed development included with this submittal are preliminary conceptual plans.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

Future development plans will focus on the construction of site-specific industrial buildings and structures; each project will require site-specific approvals by the City of Edgewood - including any necessary environmental review. Any examples of proposed development included with this submittal are preliminary conceptual plans.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

Future site-specific development plans will require environmental review of proposed construction plans; examining each project's unique characteristics and impacts on the immediate environment. Any examples of proposed development included with this submittal are preliminary conceptual plans.

ENVIRONMENTAL CHECKLIST

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9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

Given the site's current residential zoning (SF-3) and the Applicant's desire to rezone the subject property to Industrial in order to achieve greater utility and the highest and best use of the land, an application has been submitted to the City of Edgewood seeking a comprehensive plan/map amendment, enabling the rezoning of the property.

10. List any government approvals or permits that will be needed for your proposal, if known.

In addition to the comprehensive plan/map amendment (a process which includes this checklist), future development of the property may require project/site-specific entitlements and additional environmental review. As development proceeds, construction permits will also be required.

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

Simply stated, the Applicant seeks approval of a comprehensive plan/map amendment to allow for the rezoning of the undeveloped Uchida Farm LLC property (68.51 acres) from SF-3 Residential to Industrial. One developed parcel (1.95 acres) is included in an effort to address issues of non-conformity and to reinforce the overall industrial character inherent in this proposal. The Uchida Farm LLC site is currently used as farmland, but if approved, this amendment will allow for the site to be developed with uses drawn from a wide range of assembly, manufacturing and warehousing uses.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

The subject property is addressed as 8819 Valley Avenue East, Edgewood WA 98371-2535. The site contains multiple parcels, including, but not limited to, APN 2009364000 and APN 0420163054; a boundary map has been included with this submittal, identifying said parcels and the extent of the proposed amendment. For the purposes of this application, a basic legal description is as follows: Section 16, Township 20, Range 04, Quarter 32

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site (circle one): Flat, rolling, hilly, steep slopes, mountainous, other

The site is essentially flat; the slopes found onsite are associated with the Wapato and Simons Creek watersheds.

b. What is the steepest slope on the site (approximate percent slope)?

Specific slope data awaits a comprehensive survey of the property. However, the Applicant projects minimal sloping (approximately 3%-5% along the banks of both Wapato Creek and Simons Creek watercourses. The vast majority of the site is flat.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.

A geotechnical report would be necessary to identify specific soil types; however the surface soils are what is generally considered to be agricultural soils typically found in the Pacific Northwest. Past agricultural use supported pasture (through 1976) and farming uses.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

To the best of the Applicant's knowledge, there is no history or evidence of soil instability.

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.

Not applicable; given the purpose of this application and checklist. Specific data will be generated only through future development processes associated with construction plans; plans submitted with this submittal are conceptual in nature.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

While minimal erosion/sedimentation is typically associated with development activity, the Applicant believes there is no risk of significant erosion due to the implementation of best management practices - to be evaluated through the City of Edgewood's permit process.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

No reliable estimate is available at this time, but future development of industrial buildings and related improvements would realize a large amount of impervious surface; mitigated in part by extensive perimeter landscaping and interior landscaping in parking areas.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

Erosion and sedimentation control will be implemented in accordance with best management practices, identified when the project reaches the construction phase.

2. Air

a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.

Any evaluation of air quality is premature, but no long-term adverse impacts are anticipated and necessary measures will be implemented to minimize impacts related to construction.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

To the best of the Applicant's knowledge, there are no off-site sources of emissions or odors which would affect future development of the property.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

Aside from a commitment to implement best management practices for each phase of the project, no additional measures are known to be needed at this time.

3. Water

a. Surface:

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

Two year-round streams are located onsite; Wapato Creek and Simons Creek which converges with Wapato Creek in the northwest corner of the property. Wapato Creek drains into Commencement Bay.

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

Without knowing any future development plans, the extent of any construction activity and its proximity to the creeks cannot be determined.

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

No reliable estimate is available at this time, but future development of industrial buildings and related improvements would likely realize extensive grading and probable excavation for foundations; generating cut/fill data which would be evaluated on a project basis. The Applicant will insist on the use of fill material only from approved sites.

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

To the best of the Applicant's knowledge at this time, no surface water withdrawals or diversions will be required. This topic would be evaluated on a project basis with withdrawals and diversions subject to jurisdictional approval once construction plans are submitted at a later date.

5) Does the proposal lie within a 100-year flood plain? If so, note location on the site plan.

A review of FEMA's FIRM Panel No. 53053C0333E (effective 3/7/17) indicates portions of floodway associated with Wapato and Simons Creeks, but the majority of the site is classified with a low risk of flooding, roughly evenly divided between Zones AE and X

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

Not applicable; any project construction would be subject to evaluation of waste material discharge. However, to the best of the Applicant's knowledge, the types of industrial uses sought for the project would not typically generate waste discharge to surface waters.

b. Ground:

ENVIRONMENTAL CHECKLIST

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1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well? Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.

Not applicable at this time; to the best of the Applicant's knowledge, no groundwater will be withdrawn based on the intent to connect with existing municipal systems whenever possible. Excavation may encounter perched groundwater; requiring dewatering.

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals...; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

No determination can be made at this time.

c. Water runoff (including storm water):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

No determination can be made at this time. Stormwater control, including flow control and water quality measures, along with detention requirements, will be enforced by the City of Edgewood through the development review process on a project basis.

2) Could waste materials enter ground or surface waters? If so, generally describe.

While generally unlikely, technically there is a minute possibility of surface runoff acting to convey unspent hydrocarbons and/or other surface contaminants from paved surfaces into either ground or surface water.

3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

No determination can be made at this time; plans submitted are conceptual and only intended for preliminary discussions.

d. Proposed measures to reduce or control surface, ground, runoff water, and drainage pattern impacts, if any:

No determination of need can be made at this time; thus mitigation measures cannot be accurately identified. Stormwater control, including flow control and water quality measures, along with detention requirements, will be enforced by the City of Edgewood through the development review process on a project basis.

4. Plants

a. Check the types of vegetation found on the site:



Deciduous tree: Alder, maple, aspen, other

ENVIRONMENTAL CHECKLIST

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- ☒ Evergreen tree: Fir, cedar, pine, other
- ☒ Shrubs
- ☒ Grass
- ☒ Pasture
- ☒ Crop or grain
- ☐ Orchards, vineyards or other permanent crops.
- ☒ Wet soil plants: Cattail, buttercup, bullrush, skunk cabbage, other
- ☒ Water plants: Water lily, eelgrass, milfoil, other
- ☒ Other types of vegetation

b. What kind and amount of vegetation will be removed or altered?

No determination can be made at this time. The removal/retention of vegetation will be reviewed by the City of Edgewood through the development review process on a project basis.

c. List threatened and endangered species known to be on or near the site.

To the best of the Applicant's knowledge, there are no threatened or endangered species located on or near the subject property.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

The extent of onsite landscaping, including irrigation, will be determined on a project basis, with the City of Edgewood likely requiring complete landscape and irrigation plans for review.

e. List all noxious weeds and invasive species known to be on or near the site.

No determination can be made at this time.

5. Animals

a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site. Examples include:

Birds: Hawk, heron, eagle, songbirds, other:

A wide variety of birds can be observed on the subject property, at any given time.

Mammals: Deer, bear, elk, beaver, other:

The presence of mammals onsite likely varies by season and is unknown at this time.

Fish: Bass, salmon, trout, herring, shellfish, other:

Species found in Wapato and Simons Creeks is unknown at this time.

ENVIRONMENTAL CHECKLIST

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- b. List any threatened and endangered species known to be on or near the site.

To the best of the Applicant's knowledge, there are no threatened or endangered species located on or near the subject property.

- c. Is the site part of a migration route? If so, explain.

The property lies within the Pacific Flyway; a heavily traveled route for numerous species of migratory birds and waterfowl.

- d. Proposed measures to preserve or enhance wildlife, if any:

With no impacts identified or anticipated at this time, no mitigation measures are under consideration; future determination awaits the preparation of actual development plans.

- e. List any invasive animal species known to be on or near the site.

To the best of the Applicant's knowledge, there are no invasive species located on or near the subject property.

6. Energy and natural resources

- a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Not determined at this time; however it is anticipated all typical public utilities will be available.

- b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

Not determined at this time; but highly unlikely.

- c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

Not determined at this time; however the City of Edgewood will certainly require new projects to be fully compliant with the applicable provisions of the Washington State Energy Code.

7. Environmental health

- a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

Not determined at this time; future development activity will be reviewed to identify any environmental hazards and appropriate mitigation.

1) Describe any known or possible contamination at the site from present or past uses.

To the best of the Applicant's knowledge, there is no known contamination from present or past uses on the subject property.

2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.

Not applicable.

3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.

Not applicable.

4) Describe special emergency services that might be required.

The Applicant does not anticipate any increased demand on special or emergency services provided by any jurisdiction.

5) Proposed measures to reduce or control environmental health hazards, if any:

With no impacts identified or anticipated at this time, no mitigation measures are under consideration; future determination awaits firm development plans.

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

Minimal noise levels may originate from vehicular traffic on adjacent public rights-of-way.

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

To be determined at a later date, based on actual uses located onsite. Short-term construction noise (typically between 57-89 DBA) can be anticipated during construction.

3) Proposed measures to reduce or control noise impacts, if any:

To be determined at a later date.

8. Land and shoreline use

a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.

The current use of the subject property is farmland, with annual agricultural activity. The proposed amendment and rezoning to industrial is not projected to impact nearby uses - many of which are industrial properties (SW of Valley Avenue).

b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?

The level of agricultural activity onsite has been relatively consistent in recent years; leading to a minimal impact of commercial significance for the property. Pending final development plans for site-specific industrial uses, the Applicant is proposing to convert the primary Uchida Farm LLC property (+/- 66.55 acres) to industrial uses and related improvements.

1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how:

No.

c. Describe any structures on the site.

Nineteen (19) structures are existing onsite; four (4) residential structures, and associated with farming/commercial activity, ten (10) accessory structures (barns, sheds, etc.), three (3) maintenance structures, and two (2) smaller office buildings.

d. Will any structures be demolished? If so, what?

While specific development plans are not available at this time, the Applicant projects all of the structures located onsite will be demolished as development activity proceeds.

e. What is the current zoning classification of the site?

The property is currently zoned SF-3, Moderate Residential; a single-family classification intended to provide for a maximum of three (3) dwelling units per acre.

f. What is the current comprehensive plan designation of the site?

Moderate Single-Family Residential

g. If applicable, what is the current shoreline master program designation of the site?

Not applicable.

h. Has any part of the site been classified as a critical area by the city or county? If so, specify.

To the best of the Applicant's knowledge, no critical areas have been identified onsite.

i. Approximately how many people would reside or work in the completed project?

To be determined at a later date; pending site-specific development of industrial uses. However, a change of use will undoubtedly generate significant job growth - possibly leading to additional growth benefits for the City of Edgewood in population and economic development.

j. Approximately how many people would the completed project displace?

None.

k. Proposed measures to avoid or reduce displacement impacts, if any:

With no impacts identified or anticipated at this time, no mitigation measures are under consideration; future determination awaits firm development plans.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The amendment process will stipulate the degree of compatibility to be realized by the Applicant's proposal.

m. Proposed measures to reduce or control impacts to agricultural and forest lands of long-term commercial significance, if any:

With no impacts identified or anticipated at this time, no mitigation measures are under consideration; future determination awaits firm development plans.



9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

There is no residential component associated with this project.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

Four (4) units would likely be eliminated; income-levels are undetermined at this time.

c. Proposed measures to reduce or control housing impacts, if any:

With no impacts identified or anticipated at this time, no mitigation measures are under consideration; future determination awaits the preparation of actual development plans.

10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

To be determined at a later date.

b. What views in the immediate vicinity would be altered or obstructed?

None.

c. Proposed measures to reduce or control aesthetic impacts, if any:

With no impacts identified or anticipated at this time, no mitigation measures are under consideration; future determination awaits the preparation of actual development plans.

11. Light and glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

To be determined at a later date; however, the use of perimeter landscaping is likely to greatly minimize any glare or spillover onto adjacent properties.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

No.

- c. What existing offsite sources of light or glare may affect your proposal?

Headlights from vehicular traffic on adjacent rights-of-way, but perimeter landscaping is also projected to minimize incoming glare.

- d. Proposed measures to reduce or control light and glare impacts, if any:

With no impacts identified or anticipated at this time, no mitigation measures are under consideration; future determination awaits the preparation of actual development plans.

12. Recreation

- a. What designated and informal recreational opportunities are in the immediate vicinity?

None have been identified.

- b. Would the proposed project displace any existing recreational uses? If so, describe.

None.

- c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

With no impacts identified or anticipated at this time, no mitigation measures are under consideration; future determination awaits the preparation of actual development plans.

13. Historic and cultural preservation

- a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers? If so, specifically describe.

None.

- b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation. This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near

the site? Please list any professional studies conducted at the site to identify such resources.

To the best of the Applicant's knowledge, there are no cultural or historic resources to be found onsite. Future development activity may likely be conditioned through a cultural resources analysis and/or construction protocols in the event resources are discovered.

c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.

Not applicable at this time; such research and methodology is deferred until future development plans are available for consideration and review.

d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.

With no impacts identified or anticipated at this time, no mitigation measures are under consideration; future determination awaits the preparation of actual development plans. The Applicant will commit to working with all jurisdictions to identify and mitigate cultural resources in conjunction with future permitting approvals.

14. Transportation

a. Identify public streets and highways serving the site or affected geographic area, and describe proposed access to the existing street system. Show on site plans, if any.

The main access would be provided from Valley Avenue, with secondary access from 90th Avenue and 40th Street.

b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?

Public transit does not serve the site; the nearest transit service is approximately two (2) miles away; to the west, W 70th Avenue, or to the east, Meridian and Valley Avenue.

c. How many additional parking spaces would the completed project or nonproject proposal have? How many would the project or proposal eliminate?

To be determined at a later date.

d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).

To be determined at a later date.

e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

No.

f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate

when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?

To be accurately determined at a later date, once specific projects/uses are identified. The City of Edgewood's Concurrency Reservation process will provide a preliminary indication of traffic impacts on adjacent public rights-of-way.

g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.

No.

h. Proposed measures to reduce or control transportation impacts, if any:

With no impacts identified or anticipated at this time, no mitigation measures are under consideration; future determination awaits the preparation of actual development plans - revealing specific impacts associated with specific uses.

15. Public services

a. Would the project result in an increased need for public services (for example: Fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.

No increase in the demand for public services is projected to result from the Applicant's proposal. Future increases are highly unlikely given the coverage currently provided to the area by the City of Edgewood.

b. Proposed measures to reduce or control direct impacts on public services, if any.

With no impacts identified or anticipated at this time, no mitigation measures are under consideration; future determination awaits the preparation of actual development plans - revealing specific impacts associated with specific uses.

16. Utilities

a. Circle utilities currently available at the site: Electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.

All necessary public utilities are available to the subject property; capacity is presumed adequate, pending review of future industrial development activity.

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

Not researched at this time. This level of detail on public utilities is typically addressed through site-specific development plans; a full utility plan is typically prepared for all development projects.

ENVIRONMENTAL CHECKLIST

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C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

I, JOEL A. HOWITT being duly sworn, declare that I am the contract purchaser, agent or owner of the property involved in this application, and under penalty of perjury by the laws of the state of Washington certify, that the foregoing statements and answers herein contained and the information herewith submitted are true and correct to the best of my knowledge and belief.

Dated : 11/26/17

Signature : 

Subscribed and sworn to before me this 26th day of December, 2017.



Nancy L. Scott
Notary Public in and for the State of Washington

Residing at Kent

Commission Expires 4/29/21

D. SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS

(do not use this sheet for project actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

To the best of the Applicant's knowledge, any increases or impacts to water or air quality are projected to be either non-existent or minimal. Without specific development plans and uses, this response must be general in nature.

Proposed measures to avoid or reduce such increases are:

Any increases or issues identified by the appropriate jurisdiction as probable through plan review, will be addressed through specific mitigations agreed to and supported by the agencies involved. By necessity, that cannot be specified at this time, but it is important to note that the industrial uses targeted for this project - assembly, light manufacturing and warehousing - are not typical generators of the types of adverse impacts identified above.

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

To the best of the Applicant's knowledge, the only impacts will be associated with the loss of farmland and natural topography, and its replacement with impervious surfaces; a change supported by the need to utilize the property as an economic and employment generator.

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

Any impacts identified by the appropriate jurisdiction as probable, through plan review, will be addressed through specific mitigations agreed to and supported by the agencies involved. By necessity, measures cannot be specified at this time; the only "measure" to be implemented with certainty lies in the Applicant's commitment to support all best management practices applicable to the impact/issue.

3. How would the proposal be likely to deplete energy or natural resources?

To the best of the Applicant's knowledge, the proposed amendment will not have an adverse impact on either energy or natural resources, aside from a minimal loss of agricultural land.

Proposed measures to protect or conserve energy and natural resources are:

With no impacts identified or anticipated at this time, no mitigation measures are under consideration; future determination awaits the preparation of actual development plans - revealing specific impacts associated with specific uses.

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, flood plains, or prime farmlands?

To the best of the Applicant's knowledge, the proposed amendment will not have an adverse impact on any of these areas/issues. The farmland being adapted to industrial use is an agricultural resource; however, its replacement with industrial uses is projected to provide immeasurable ancillary benefits to the City of Edgewood and surrounding communities.

Proposed measures to protect such resources or to avoid or reduce impacts are:

With no impacts identified or anticipated at this time, no mitigation measures are under consideration; future determination awaits the preparation of actual development plans - revealing specific impacts associated with specific uses.

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

To the extent practical, the watersheds of both Wapato Creek and Simons Creek will be integrated into proposed development activity. While specifics await actual development plans, the Applicant hopes to work with his engineering team and the City of Edgewood to preserve these watersheds and their surrounding environment - integrating them into future development.

Proposed measures to avoid or reduce shoreline and land use impacts are:

Specifics to be determined at a later date, based on proposed development activity.

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

There may be increased traffic/trip generation as a result of probable job growth associated with this amendment/rezoning; specifics will depend on the location and nature of specific tenants. Edgewood staff will monitor this trip generation and identify impacts to levels of service.

Proposed measures to reduce or respond to such demand(s) are:

To be determined at a later date.

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

To the best of the Applicant's knowledge, this proposal does not conflict with local, state or federal laws, codes or regulations for the protection of the environment. The Applicant is relying on plan review activity associated with future construction plans to identify any conflicts and provide context for necessary mitigation measures.

Credits

Statutory Authority: RCW 43.21C.110. WSR 16-13-012 (Order 15-09), S 197-11-960, filed 6/2/16, effective 7/3/16. Statutory Authority: RCW 43.21C.110 and RCW 43.21C.100 [43.21C.170]. WSR 14-09-026, (Order 13-01), S 197-11-960, filed 4/9/14, effective 5/10/14; Statutory Authority: RCW 43.21C.110. WSR 13-02-065 (Order 12-01), S 197-11-960, filed 12/28/12, effective 1/28/13; WSR 84-05-020 (Order DE 83-39), S 197-11-960, filed 2/10/84, effective 4/4/84.

Current with amendments adopted through the 17-13 Washington State Register dated, July 5, 2017.

WAC 197-11-960, WA ADC 197-11-960

End of Document

COMPREHENSIVE PLAN MAP AMENDMENT AND ZONE CHANGE: PROJECT NARRATIVE AND EXHIBITS

**8819 Valley Avenue East
Edgewood, Washington**

**Prepared for:
Uchida Farm LLC**

January 2018
Submittal Date: December 27, 2017
Our Job No. 18957

RECEIVED

DEC 27 2017

City of Edgewood

17-1549



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**NARRATIVE, EXHIBITS and
PROJECT SUMMARY
8819 Valley Avenue East
Edgewood, Washington 98371-2535**

**In Support of an Application Requesting Approval of a
Comprehensive Plan Map Amendment
and
Zone Change**

**Proposed by
Uchida Farm LLC**

**Narrative Prepared by
Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, Washington 98032**

Background

The owners of a number of adjacent parcels located within the City of Edgewood formed a limited liability corporation, Uchida Farm LLC, intending to develop approximately 68.51 acres (Figure 1) as an industrial site on their collective properties (as indicated by the conceptual plan for the Uchida Logistics Center (Figure 5)). This development will complement and support the City of Edgewood's recent efforts at economic development as the subject properties are located in the southwest corner of Edgewood; immediately adjacent to an existing diverse industrial area.

However, said properties have been previously designated for moderate density, single-family residential use under the provisions of the City of Edgewood's Official 2015 Comprehensive Plan. Achieving the Applicant's goal will require multiple approvals from the City of Edgewood; providing initially for the amending of the City's 2015 Comprehensive Plan Map, changing the collective designation of said properties from residential to industrial. As a result of this process, the subject properties would then be rezoned under the City of Edgewood Zoning Ordinance, from Residential (SF-3) to Industrial (I).

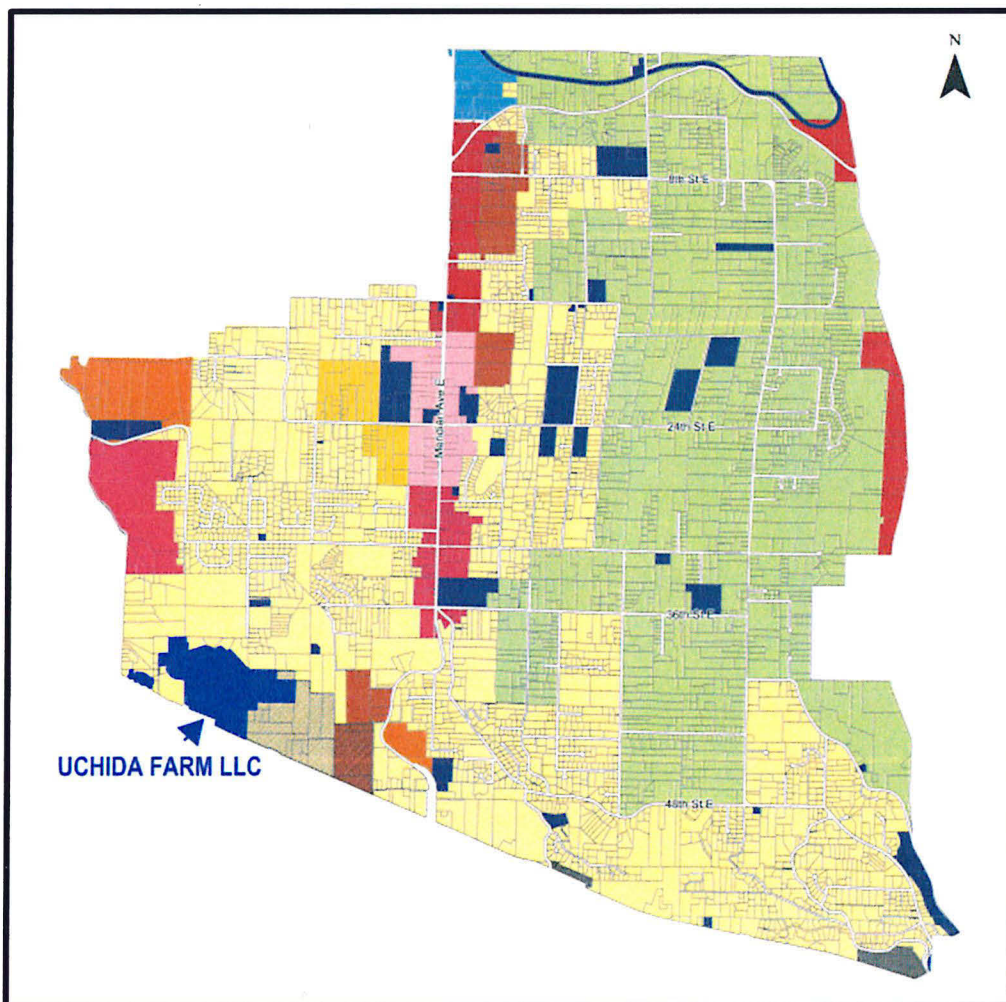


FIGURE 1

In preparing this application, the Applicant's design team focused on economic policy considerations which would need to be adequately addressed to the satisfaction of Edgewood, as well as a need for the preparation of a preliminary, conceptual site plan (Figure 5); providing a local and regional context for review of this application, as well as a degree of site-specific design to demonstrate the commitment of the Applicant to address physical constraints of the site.

The City of Edgewood is already well aware of the development potential of the area including the Uchida Logistics Center site; including all of the Uchida Farm LLC parcels within a Special Land Use Overlay Area. The Overlay Area is intended to focus the City's attention on economic development opportunities which could arise from specific changes to the City's Comprehensive Plan and related official maps – the Future Land Use Map and the Official Zoning Map; designating under-utilized moderate density residential property for industrial use.

The Applicant feels the benefits of such a change would likely be of regional and local consequence, with economies of scale attributed to larger projects – such as being proposed by the Uchida Logistics Center proposal, accelerating local job creation when compared to smaller scale industrial sites, and promoting a greater ripple effect throughout Edgewood's residential and retail sectors. Workers needing a place to live closer to their employer would help grow the local housing market, while bringing economic growth to Edgewood businesses; greater retail growth could also accelerate future retail development and expansion as the local trade area expands its resident and daytime populations; becoming more attractive to more retailers.

This type of economic growth is typically a priority of the comprehensive planning process; Edgewood follows this path, going a step further by seeking to limit industrial growth to those portions of the City where access to regional transportation access is readily available – a criteria the Uchida Farm LLC site clearly meets.

Subject Properties

For the purposes of this application, a single address (8819 Valley Avenue East) has been used; however there are twelve (12) separate tax parcels which comprise the proposed Uchida Farm LLC development:

Parcel Information Table – Uchida Farm LLC					
Parcel No.	Acreage	Square Footage	Zoning	Primary Use	Ownership
042016-3054	44.7	1,947,132	SF-3 Moderate Density Single-Family Residential	Farmland	Minoru Uchida
042016-3055					
042016-3702					
042016-3047					
042016-3026					
042016-3023					
042016-3052	2	82,764		Warehouse / Storage	Darth & Andrea Castan
042016-2700	11	469,577		Farmland	William Bennett, dba Reasonable Investments
042017-5004	5.1	220,849		Farmland	Gary & Linda Todd
042016-6003	3.1	134,601		Vacant / Undeveloped	Cathy V Canorro
042017-5005					
042017-4047	1.96	85,378		Commercial	Reuben Knoblauch, dba 8311 Ewood LLC

PROPERTIES of RECORD - COMPREHENSIVE PLAN AMENDMENT JANUARY 2018

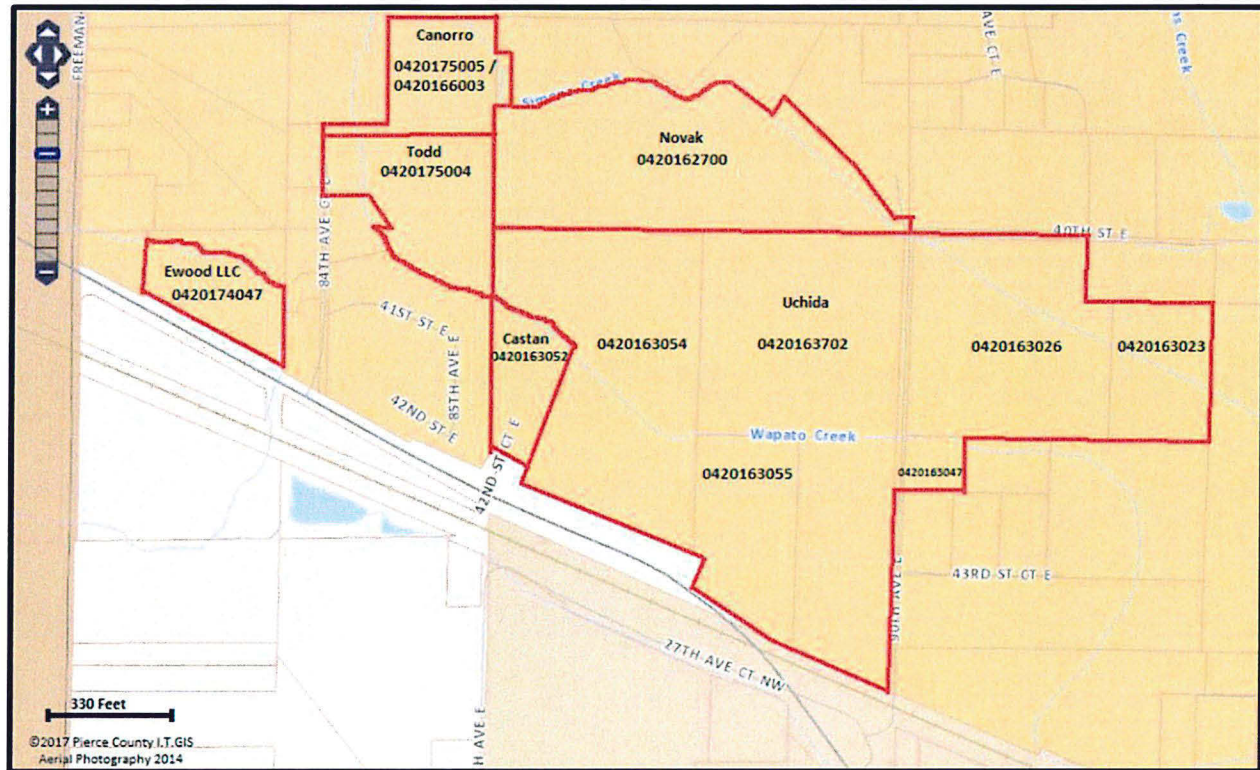


FIGURE 2

Applicant's Request

Uchida Farm LLC requests concurrent approval of a Comprehensive Plan Map Amendment (CPMA) to the 2015 Edgewood Comprehensive Plan, Future Land Use Map (June 16, 2015), and a rezoning or zone change to Industrial (I); affecting the properties identified above (Figure 2) and included in the Parcel Information Table. These properties are currently designated as Moderate-Density, Single-Family Residential, with zoning of SF-3 under the City of Edgewood Official Zoning Map (June 16, 2015).

Site and Vicinity

The subject properties are situated at the southwest corner of the City of Edgewood; immediately adjacent to a major arterial, Valley Avenue East, on the south, along with railroad tracks running parallel to Valley Avenue for the length of the Uchida Farm. The irregular boundaries of the site dictate a number of local collector streets serve the properties; including, but not limited to, 84th Avenue East and 90th Avenue East.

Portions of the subject properties include the watersheds of two small streams; Simons Creek, which runs through the northern portion of the site, and Wapato Creek, running through the southern portion.

Existing and Proposed Zoning and Plan Classification

The figures below provide side-by-side graphic representation of the proposed map amendment and the concurrent zoning change necessary to initiate the development process for the Uchida Logistics Center. Maps are shown representing current comprehensive plan map classifications and current zoning; drawn from the latest official maps. The Uchida Farm LLC properties are highlighted on each graphic.

Comprehensive Plan Map

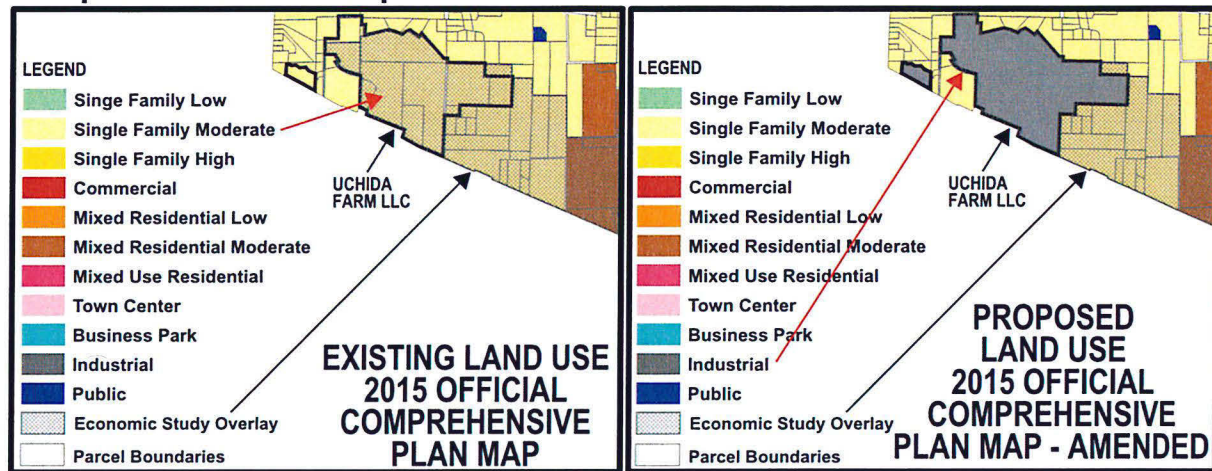


FIGURE 3

Zoning Map

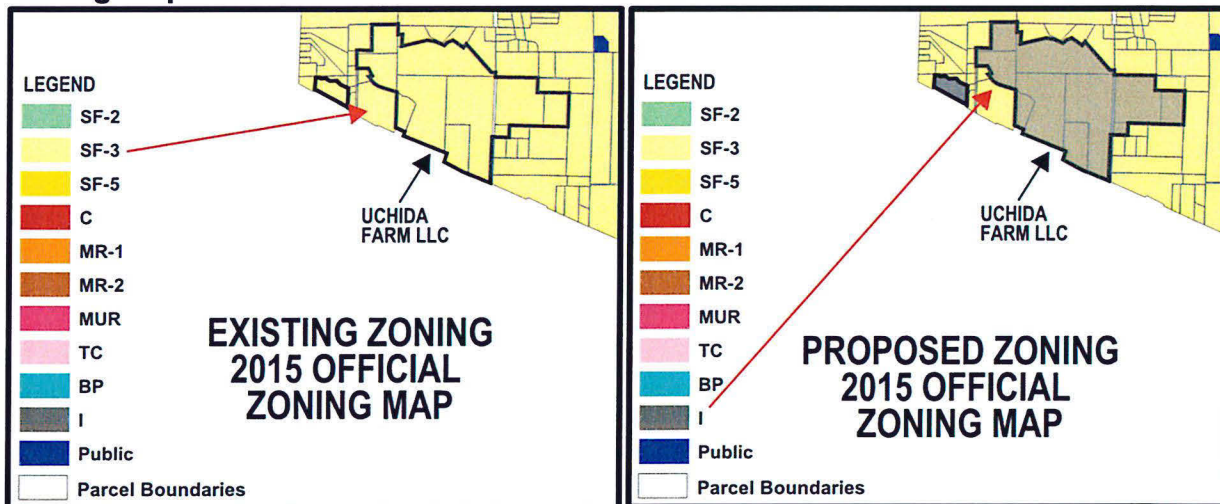


FIGURE 4

Approvals and Future Plans

The Applicant's design team has prepared a Preliminary Conceptual Site Plan; offering early insight into their development concept for the Uchida Logistics Center. By necessity at this stage, the plan is general in nature, providing a sample of larger scale industrial development with multiple structures scattered across the site. While final plans await the preparation of a boundary and topographical survey, this initial site plan assumes a useable development area of 48.34 acres; allowing nearly 18 acres of buffer area onsite (Figure 5). This plan presumes (subject to future plan review associated with development permitting) required landscaping, parking, creek buffers and provides ample opportunity for onsite stormwater facilities with eight (8) separate detention ponds providing a projected 918,000 cubic feet of detention capacity.

Our preliminary conceptual proposal calls for approximately 865,000 square feet of industrial space spread across seven (7) structures of various sizes divided into two distinct complexes, separated by the Wapato Creek watershed – North Uchida and South Uchida. North Uchida contains Buildings A, B, C and G – intended for larger scale industrial uses, while South Uchida would contain Buildings D, E and F – structures potentially attractive for smaller industrial tenants. Today's Class A Light Industrial Buildings typically have flexible designs, making the uniquely suitable for manufacturing and distribution tenants. Perimeter and interior landscaping would provide a green aesthetic for a number of internal access drives and parking areas; multiple loading docks and parking areas are strategically located to serve each building.

UCHIDA LOGISTICS CENTER Preliminary / Conceptual Site Plan

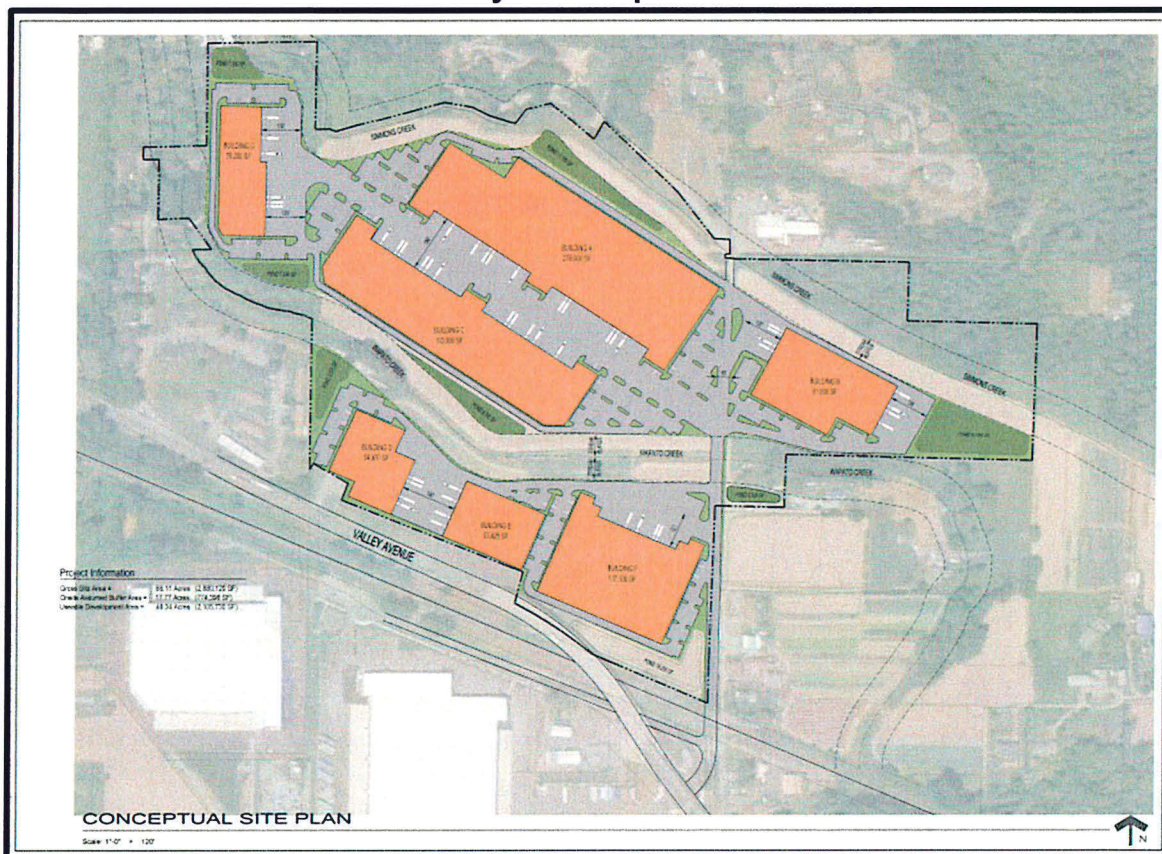


FIGURE 5

This conceptual site plan does not incorporate a twelfth parcel included as part of the Uchida Farm LLC application. This parcel (042017-4047) lies to the west of the main development area and is included as a means of addressing an existing non-conformity between the current use (commercial) and the existing zoning (single-family residential). The inclusion of this parcel not only acts to reinforce the current proposal, but will also assist in maximizing the industrial redevelopment potential of the entire southwest portion of Edgewood.

Clearly, the Applicant is striving to present an industrial development package which emphasizes flexibility by providing a number of structural options for varied scales of industrial logistics; promoting long-term economic growth for the City of Edgewood and the immediate vicinity in a responsible way which addresses known site constraints. The design team looks forward to working with Edgewood staff to fine-tune this proposal to realize even greater benefit for the community and the region.

The Application

The responses which follow not only address the specific questions posed by the City of Edgewood's Comprehensive Plan Map Amendment Application, but provide a bit of context as a means of enhancing understanding of the benefits envisioned by the Applicant, should the future of the Uchida Logistics Center be enabled through the approval of this application.

The Applicant believes this narrative will demonstrate overall consistency with the provisions of the City's Comprehensive Plan, as realized by the proposed future redevelopment of the Uchida Farm LLC properties. When viewed as a whole, the Applicant believes the conclusions contained herein will support approval of this application.

RESPONSES – COMPREHENSIVE PLAN AMENDMENT QUESTIONS				
#	Question/Requirement	Yes	No	Response
1	<i>Does the amendment request concern a specific property?</i>	X		The Applicant's ownership group (Uchida Farm LLC) consists of multiple property owners and twelve (12) separate properties. Please refer to the Parcel Information Table and Figure 2 for specific details about individual properties.
2	<i>Is this amendment request for a change in a land use designation?</i>	X		This proposal seeks a change in the land use designation for the subject properties, as specified in the Comprehensive Plan Map; amending the Map, changing from Moderate-Density, Single-Family Residential, to Industrial for all properties.
3	<i>Are you the owner(s) or authorized agents of the property?</i>	X		This application is being filed under the collective name of the Uchida Farm LLC with signatories representing the owners and/or agents of all subject properties comprising the Uchida Farm LLC.
4	<i>Provide a description or map of the area that this application affects:</i>	X		There are several maps and/or exhibits provided in this submittal which clearly identify the subject properties affected by this application and locates the Uchida Farm LLC within the City of Edgewood's boundaries. Figures 1 and 2 identify general location and parcel-specific information.
5	<i>Provide a reference to the section(s) of the Comprehensive Plan that you propose to amend, including the page – if applicable.</i>	X		The Applicant proposes to amend the Official Future Land Use Map, as adopted in June 2015: Comp Plan, Page 23, Future Land Use Map The Applicant also seeks to concurrently amend the City's Official Zoning Map, as adopted in June 2015; with changes in zoning district designation reflecting the proposed Comprehensive Plan Map Amendment.
6	<i>Provide proposed amendatory language.</i>	X		Given the graphical nature of a map amendment, the figures contained in this narrative provide a better understanding of the proposed change, summarized in the interest of clarity, by the following statement: The Official Future Land Use Map, serving as an element of the Official Comprehensive Plan, as approved in June 2015, is proposed to be amended to reflect a change from

				Moderate-Density, Single-Family Residential, to Industrial for all properties comprising the Uchida Farm LLC.
7	<i>Explain the reason(s) for this amendment proposal.</i>	X		The Applicant seeks to initiate a redevelopment process which will convert the subject properties' plan designation from single-family residential to industrial; allowing ownership to realize a use which is generally consistent with future land use and planning goals relative to industrial growth and related employment gains.
8	<i>Please describe how your proposed amendment meets the following selection criteria.</i>	X		
	a) <i>Was this proposed amendment denied during a previous review cycle?</i>		X	While there have been previous discussions about this type of approval a previous submittal was received in 2016, efforts were placed on hold due to ongoing land use studies and planning initiatives, and the need to provide more information about the potential value associated with the Applicant's proposal. This current effort includes a preliminary, conceptual site plan for the proposed Uchida Logistics Center; a project which will require a comprehensive plan map amendment and a rezoning/zone change in order to initiate the development/permitting stage.
	b) <i>Explain how the proposed amendment advances the goals and policies of the Comprehensive Plan?</i>	X		<u>Consistency</u> ... Fostering the economic growth of the City's industrial base remains a key element of the overall comprehensive planning process (LU.1.m/Page 25). A proposal such as the Uchida Logistics Center, which adapts undeveloped farmland, turning it into an economic engine for employment and sector growth, is certainly consistent with the goals of a comprehensive plan – as long as the proposal respects the environment and takes advantage of proximity to assets required by industrial uses such as convenient highway and rail access. Amending the comprehensive plan and the rezoning of the Uchida LLC properties offers Edgewood a chance to realize these benefits and take advantage of a surging local real estate market and national economy; over the past four (4) years, development along Valley Avenue and Freeman Road has produced millions of square feet of industrial space. <u>Changes Since Plan Adoption</u> ... Whereas the national and regional economies have shown a degree of sustainable growth in a variety of sectors, Edgewood has lagged behind in recent times (Page 21). While recession may create the initial circumstances, one of the main drivers of growth consistently lies in the development of industrial land uses. Besides the benefits of increased tax revenues, industrial development drives employment; which in turn radiates economic growth into residential

			and retail sectors. The City of Edgewood has responded to this need by designating much of the southwest portion of Edgewood – including the entire Uchida Logistics Center site – as the subject to a Special Land Use Overlay Study Area. While certain observers catalog a surplus of available industrial land in Edgewood (12.82 acres according to the Puget Sound Regional Council), the Applicant believes the perceived underutilization of Edgewood’s industrial base is essentially incorrect and does not reflect current market conditions. Local market activity indicates a <u>shortage of industrial land</u> in all submarkets stretching from Tacoma to Seattle – and this particular submarket is one of the region’s most sought after industrial locations. Over the past four (4) years approximately 2.6 million square feet of Class A industrial buildings have been developed on 175 acres of industrial land located within 1½ miles of the Uchida Farm LLC site. The majority of this development is located within ½ mile of the site - and serving as an even greater indicator of demand – all of the twelve (12) industrial structures are 100% occupied. Being a “first mover” in a competitive marketplace and able to provide the size, scale and location of market-driven industrial infrastructure needed by tenants, is an advantage provided by the Applicant’s proposal –which focuses regional industrial interest on a signature project for Edgewood. <u>Validity of Assumptions</u> ... The Uchida Logistics Center would be a prime example of the validity of assumptions serving as the foundation of Edgewood’s comprehensive planning effort; including the projection that 30% of future industrial growth would occur in the southwest corner of Edgewood – where the Uchida Farm LLC is located. Projecting industrial growth in an area zoned and planned for residential growth under current planning tools is a procedural inconsistency which seems to foresee a need for the amendment process - such as the Applicant’s proposal - in order to realize that projection and achieve the desired economic growth. <u>Availability of New Information</u> ... The source of new information supporting the need for an amendment lies within the overall assessment of industrial need put forth by the 2015 Pierce County Buildable Lands inventory; which strongly emphasizes the role played by industrial growth in the regional economy. The lack of recent industrial growth in Edgewood by definition places the community at a disadvantage in today’s economy.
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			<u>Conformity to Community Values</u> ... The Applicant's proposal conforms and supports community values in two ways; first, through the collective engagement process used to debate the proposal's merits; and second, in the proposal's obvious efforts to address any and all issues which may arise from the approval of this amendment and the implementation of development (LU.V.11/Page 28). The amendment will also provide for a concentration of industrial traffic on major arterials such as Velley Avenue; restricting usage of local collectors except for deliveries and/or service needs (T.11.c/Page 44). In anticipation of this increased industrial usage, in recent years both Valley Avenue and Freeman Road have been substantially improved to accommodate increased traffic. <u>Transportation Impacts and Concurrency</u> ... The proposed amendment does not specifically address transportation issues, but the concurrency evaluation included as part of the application serves as the initial step in developing improved highway accessibility and ensuring impacts associated with proposed development are adequately mitigated in addressing levels of service for Edgewood's transportation network. <u>Public Service Demand</u> ... While new growth of any kind will add to the potential for increased demand for public services, the Applicant believes the Uchida Farm LLC proposal will minimize demand by developing within an area where existing services are available; limiting any growth in service demand to minimal levels. <u>Adverse Impacts to Service Capabilities</u> ... The design of the proposed Uchida Logistics Center will not only mitigate any adverse impacts identified through a review process, but will also continue a tradition of increased accessibility to improved public services dating to the sewer installation in the Meridian Corridor in 2011. New infrastructure will not only add to land value, but will also promote creative development proposals which will help integrate civic plans with redevelopment opportunities. <u>Suitability of Land for Proposed Uses</u> ... While site constraints exist in the form of watersheds, the overall topography of the site lends itself to development of large-scale industrial projects. The conceptual plan for the Uchida Logistics Center offers an initial insight into how the needs of a particular use can be accommodated on a unique site. The site's suitability for the intended industrial development is supported by the substantial amount of development in the immediate area; occurring on industrial-zoned land with strikingly similar characteristics to the Uchida site.
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			<u>Peer Pressure for Similar Changes</u> ... In fact, the existence of industrial properties in the immediate vicinity serve as an indicator of successful industrial demand; Edgewood's stated goals of increased industrial growth and the targeting of this area as a candidate for industrial development as evidenced by the overlay district, indicate a response to market forces which may be mutually reinforcing – should the Uchida project be built as planned. <u>Effect on Land Use and Population Projections</u> ... There is no doubt that approval of this amendment and the construction of the Uchida Logistics Center will serve as catalysts for additional changes in land use categories and planning designations. Population growth may follow on a slower pace, but the development of employment centers typically provides for some increase in local populations as workers relocate to shorten their commutes and/or improve their lifestyle.
	c) <i>Explain how the proposed amendment is consistent with the goals of the Growth Management Act?</i>	X	<u>Urban Growth</u> ... Consistency would be achieved through an emphasis on controlled urban growth; concurrent with infrastructure capacity and public service capabilities identified through a comprehensive review of proposed plans versus existing capabilities of affected jurisdictions. <u>Reduced Sprawl</u> ... Consistency would be achieved through encouragement of new industrial development within existing City boundaries; presumably in proximity to adequate infrastructure and services. <u>Transportation</u> ... Consistency would be achieved by requiring future development resulting from the proposed amendment, to provide for improvements necessary to accommodate growth while maintaining acceptable levels of service within the community's road network. A commitment to such accommodation is amply demonstrated in the Applicant's preliminary site plan for the proposed Uchida Logistics Center; a project dependent on the approval of this amendment. <u>Housing</u> ... Consistency would be achieved through the secondary impacts of economic growth driven by the growth in the community's industrial base, as workers may realize local opportunities to shorten their commute by living in the community where they work. <u>Economic Development</u> ... Consistency would be achieved through the amendment's fostering of industrial growth –a staple element of the growth projections of the current comprehensive plan. <u>Property Rights</u> ... Consistency would be achieved within the amendment process through the public hearings and community engagement elements associated with said review; preserving the rights of the Uchida Farm LLC consortium to seek changes to policies which would allow them to realize full value of their properties. For

				those who may oppose this amendment, their property rights are maintained through their right to comment and a corresponding right to appeal a decision they feel is contradictory to their interest. <u>Permits</u> ... Consistency is achieved through the initial entitlement process focusing on the comprehensive plan map amendment process; should approval be granted, consistency would be further reinforced by the plan review and permitting processes implemented by the City of Edgewood staff. <u>Natural Resources</u> ... Consistency would be achieved through the Applicant's commitment to work to preserve natural resources identified as present on the site; including the preservation and enhancement of creek beds and shorelines affected by future development. <u>Open Space & Recreation</u> ... Consistency would be achieved through the addition of significant industrial growth in a manner which does not adversely impact existing open space or recreational opportunities on a macro scale. On a smaller scale, the proposed Uchida Logistics Center features a site plan with significant open space and landscaping aesthetics scattered throughout the site; emphasizing a commitment to maintaining and enhancing critical areas within the Wapato and Simons Creek watersheds. <u>Environment</u> ... Consistency would be achieved through a responsible integration of critical watershed areas in a significant economic development project enabled by the approval of this amendment. A commitment to the implementation of best management practices in future development by the Applicant lends credence to the level of consistency achieved. <u>Citizen Participation</u> ... Consistency would be achieved as a result of the community outreach and engagement inherent in the comprehensive plan amendment process as implemented by the City of Edgewood. <u>Public Facilities</u> ... Consistency would be initially achieved through a thorough evaluation of impacts identified as a result of the proposed amendment review process. Later, as development activity is initiated, a more thorough analysis of the need for additional public facilities and the responsibility for additional costs would be addressed through system development charges.
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			<u>Historic Preservation</u> ... Consistency will be achieved through an initial opportunity to review and comment on the presence of any historic, architectural or cultural resources on any of the subject properties. Future development activity will be conducted in a manner which is fully cognizant of the possibility of undiscovered cultural artifacts; plans can be formulated to document the protocols to be followed in such case.
	d) <i>Does the proposed amendment have a relationship to any other City codes and/or regulations?</i>	X	Yes. Specifically, to the Edgewood Zoning Ordinance in that concurrent approval of a rezoning/zone change is being requested by the Applicant; changing the zoning of the subject properties from the current classification of SF-3, Single Family Residential/Moderate Density to I, Industrial. This change will allow for the development of the proposed Uchida Logistics Center on the proposed site. A secondary impact is found in the City of Edgewood's Proposed Capital Improvement Plan, 2015-2020. The Applicant's proposal and resulting development may help accelerate a significant program element in the Transportation Category – the Railroad Frontage Road – which has feasibility expenditures scheduled for FY2019-20. It is reasonable to anticipate similar review of other utility and capital infrastructure elements as they may relate to the proposed Uchida Logistics Center.
	e) <i>What are the cumulative effects of this proposed amendment to the Comprehensive Plan?</i>	X	The cumulative effects of this amendment are positive in that future economic growth is supported in the industrial sector, likely leading to secondary growth in residential and retail sectors. Employment will likely experience significant growth in traditional industrial sectors such as assembly, light manufacturing and warehousing, with secondary growth for retail and service sectors. On a more immediate level, the amendment and resulting industrial growth will foster the development of utilities and roads; keys in improving the economic viability of an area which has become functionally depreciated as a result of current uses.