

APPENDIX A SHORELINE CRITICAL AREAS REGULATIONS

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1.111 Purpose.

The purpose of SMP Appendix A is:

- A. To protect the public health, safety and welfare by preventing adverse impacts caused by development;
- B. To protect the public and public resources and facilities from injury, loss of life, property damage or financial loss due to flooding, erosion, landslides, soils subsidence or steep slope failure;
- C. To implement the goals, policies, guidelines and requirements of the city of Carnation comprehensive plan and the Washington State Growth Management Act; and
- D. To preserve and protect critical areas, with special consideration for the habitat of anadromous fisheries, as required by the Washington State Growth Management Act by regulating development within and adjacent to the fisheries, while allowing use of private property.

1.112 Applicability.

The city of Carnation (city) shall regulate all uses, activities, and developments within or adjacent to, or likely to affect one or more critical areas, consistent with the provisions of SMP Appendix A.

Critical areas regulated by SMP Appendix A include:

- A. Wetland areas;
- B. Critical aquifer recharge areas;
- C. Fish and wildlife habitat conservation areas;
- D. Geologically hazardous areas;
- E. Frequently flooded areas.
 - 1. The provisions of SMP Appendix A shall apply to all land activities within the city's shoreline jurisdiction whether or not a permit or authorization is required.
 - 2. The city shall not approve any development proposal or otherwise authorize alterations to the condition of any land, water, or vegetation nor permit the construction or alteration of any structure or improvement in, over, or on a critical area or associated buffer, without first assuring that the proposal complies with the requirements of SMP Appendix A and all other applicable regulations in the SMP.
 - 3. When the provisions of this SMP, SMP Appendix A, or any other provisions of the city's municipal code are in direct conflict with each other, or with other federal or state regulations, the most restrictive provision shall apply.

1.113 Designation of critical areas.

A. The city has designated critical areas by defining their characteristics. An applicant for a development proposal shall determine, and the city shall verify on a case-by-case basis, in accordance with the definitions in this Section 1.800, whether or not a regulated critical area exists on or within three hundred feet of the subject property that could be subject to SMP Appendix A.

B. The following resources may help determine the likelihood that a critical area exists on the subject or approximate property: City of Carnation Map Folio (wetlands, geologically hazardous areas, and frequently flooded areas), National Wetlands Inventory maps, U.S. Geological Survey (USGS) landslide hazard and seismic hazard maps, U.S.G.S. topographic maps, Washington Department of Fish and Wildlife (WDFW) Management Recommendations for Washington's Priority Species (WDFW), WDFW Priority Habitats and Species maps and reports, Federal Emergency Management Administration (FEMA) flood insurance maps, East King County groundwater management plan maps, the King County channel migration zones map, and the city's sewer line map.

C. The actual type, extent, and boundaries of critical areas shall be designated by the city upon consultation with qualified persons with direct knowledge of the project and the project limits and according to the procedures, definitions, and criteria established in SMP Appendix A.

D. The city shall maintain maps or descriptions of all previously designated critical areas and these maps or descriptions shall be available for review at City Hall by the public during normal business hours.

1.114 Applicant disclosure.

An applicant for a development proposal shall disclose the presence of any critical areas on the subject property and to the extent known by, or readily available to the applicant, any mapped or identifiable critical areas within three hundred feet of the subject property.

1.115 Pre-application conference.

When an applicant knows or believes that critical areas are located on or near the subject property, the applicant is encouraged, and may be required, to contact the city prior to finalizing development plans and applying for development permits. Early disclosure of critical areas and potential state or federal approvals also necessary for the project will reduce delays during the permit review process.

1.116 Submittal requirements.

In addition to the information required for a shoreline or other development permit, any development activity that is subject to the provisions of SMP Appendix A may be subject to a critical areas report as described under Section 1.200(E), provided that these additional requirements shall not apply to any action allowed in Section 1.122.

1.117 Notice on title.

The owner of any real property containing a regulated critical area or buffer on which a development proposal is submitted and approved, or on which an off-site mitigation area is approved, shall file a notice with the records division of King County to inform subsequent purchasers of the real property that regulated critical areas exist (excluding soil liquefaction and floodplain outside of the floodway or channel migration area).

A. The notice shall state:

1. The presence of the critical area, buffer, or mitigation area on the property;
2. The allowable use of this property; and
3. The limitations that may exist on actions in, or affecting, the critical area, buffer, and/or mitigation area.

B. The notice on title shall run with the property.

C. The notice on title will not be required if the work on existing structures or uses is valued at less than fifty percent of the assessed value of the existing structure or use, and if it does not increase the area of impact to the critical area and/or its buffer, except where the work is for an off-site mitigation area.

D. This notice on title shall not be required for a development proposal by a public agency or public or private utility:

1. Within a recorded easement or right-of-way; or
2. Where the agency or utility has been adjudicated the right to an easement or right-of-way.

E. The applicant shall submit proof that the notice has been filed for public record for all affected real property prior to building permit approval or prior to recording of the final plat in the case of subdivisions.

1.118 Inspection and right of entry.

The Shoreline Administrator or his designee may inspect any development activity necessary to enforce the provisions of SMP Appendix A. The applicant will consent to site visits by the Shoreline Administrator or his designee during regular business hours to make reasonable inspections to verify the applicant's information and to verify that work is being performed in accordance with the approved plans, permits, and the requirements of SMP Appendix A and applicable provisions of the SMP. For on-site and off-site mitigation areas, the applicant shall grant, or acquire approval for, right-of-access for the entirety of construction and the required monitoring period.

1.119 Enforcement.

The provisions of SMP Section VII.O (Enforcement and Penalties) shall regulate the enforcement of SMP Appendix A.

1.120 Fees.

A. The development proposal applicant must initiate, prepare, submit, and bear the expense of all required reports, assessments, studies, plans, reconnaissances, peer review by qualified consultants, and other work prepared in support of, or necessary for, compliance with the city's critical areas review process.

B. The applicant shall be responsible for monitoring and maintaining critical areas if such action is required as a condition of permit approval. Performance bonds may be withheld until all work is satisfactorily completed, including post-construction mitigation activity.

C. The applicant shall also be responsible for the city's review or peer review of performance standards as constructed, and for necessary monitoring and maintenance reports.

1.121 Appeals.

Appeals of administrative decisions shall be governed by SMP Chapter VII.

1.122 Allowed Activities.

The following developments, activities, and associated uses are allowed without preparation of a critical areas report provided the action uses reasonable methods to avoid potential impacts to critical areas consistent with mitigation sequencing, does not degrade a critical area, and does not ignore the risk from natural hazards. The party responsible for performing the allowed activity shall promptly restore, rehabilitate, or replace the disturbed critical area or buffer.

A. Emergencies.

1. Alterations in response to emergencies that threaten public health, safety, welfare or the risk of damage to private property, and those that require remedial or preventative action in a time frame too short for compliance with SMP Appendix A, as long as the alteration is reported to the Shoreline Administrator or his designee immediately. The city manager or his designee shall confirm the presence of an emergency and shall determine if mitigation will be required to protect or repair the damaged critical area.

Alterations in response to emergencies that create an impact on a critical area or its buffer shall use reasonable methods to address the emergency. In addition, those actions must have the least possible impact to the critical area and/or its buffer.

2. The person or agency undertaking the action shall fully restore and/or mitigate any impacts to the critical area and buffers resulting from the emergency action in accordance with the critical area report and the mitigation plan prepared in accordance with SMP Appendix A and as approved by the city manager or his designee.

B. Operation, maintenance or repair of existing structures, infrastructure improvements, utilities, public or private roads, dikes, levees, or drainage systems, including routine vegetation management activities when performed in accordance with approved best management practices, if the activity does not increase risk to life or property as a result of the proposed operation maintenance or repair, or when sufficient data is shown indicating that such harvesting would reduce flooding potential. All alterations to existing dikes and levees must be performed by government entities or their designees, unless the alteration qualifies as an emergency under subsection A of this section.

C. Gravel harvesting by a public agency when in accordance with local, state, and federal regulations only when there is an imminent threat that material may cause flooding or there is a potential for migration of the riverbed.

D. Activities within the improved right-of-way. Replacement; modification, installation or construction of utility facilities, lines, pipes, mains, equipment or appurtenances; not including substations, when such facilities are located within the improved portion of the public right-of-way or a city-authorized private roadway. These activities shall be subject to the following:

1. The activity shall result in the least possible impact and have no practical alternative with less impact on the critical area and/or its buffer;

2. An additional, contiguous and undisturbed critical area buffer shall be provided, equal in area to the disturbed critical area buffer;

3. Retention and replanting of native vegetation shall occur wherever possible along the right-of-way improvement and resulting disturbance; and
4. The activity does not alter a wetland or watercourse such as culverts or bridges, or result in the transport of sediment or increased stormwater.

E. Minor utility projects that are subject to local permits in accordance with the criteria below and that do not significantly impact the functions and values of a critical area(s). Utility projects that have minor or short-term impacts to critical areas may include the placement of a utility pole, street sign, anchor, vault, or other small component of a utility facility provided that such projects are constructed with best management practices and additional restoration measures are provided. Minor activities shall not result in increases of impervious surface. Such exemptions shall meet the following criteria:

1. There is no practical alternative to the proposed activity that has fewer adverse impacts on critical areas, and, all attempts have been made: (a) to avoid impacts, and (b) to minimize impacts;
2. The minor utility project will not change or diminish the overall critical area hydrology or flood storage capacity;
3. The minor utility project shall be designed and constructed to prevent spills and leaks into critical areas;
4. The minor utility project will not reduce the existing functions and values of the affected critical areas;
5. To the maximum extent practicable, utility corridor access for maintenance shall be limited to perpendicular access points into the critical area or buffer rather than by a parallel access road; and
6. Unavoidable impacts will be mitigated pursuant to an approved mitigation plan.

F. Existing and Ongoing Agricultural Activities. Existing and ongoing agricultural activities normal or necessary to general farming conducted according to industry-recognized best management practices including raising crops or livestock grazing provided no alteration of flood storage capacity or conveyance occurs. The installation of raised livestock flood sanctuary area (critter pads) constructed within the floodplain and maintained to the standards of the soil conservation service and the best management practices approved by the city shall also be exempt from the provisions of SMP Appendix A.

G. New accessory structures and additions to structures, provided that the lot coverage does not exceed a cumulative additional five hundred square feet of impervious surface, and provided that the new construction or related activity does not further intrude into a critical area or buffer and that it is subject to flood hazard areas reconstruction restrictions.

H. Activities involving those wetlands or watercourses intentionally created from nonwetland sites, including grass-lined swales, irrigation and drainage ditches, detention facilities, wetlands constructed to provide water quality treatment in conjunction with a local, state or federal water quality permit, and landscape features, except wetlands, streams, or watercourses that have documented use by state or federally listed species or wetlands created as compensatory mitigation.

I. Vegetation management that is part of the ongoing maintenance of facilities, infrastructure, public rights-of-way, or utilities, provided the vegetation management activity does not expand further into the critical area or its buffer.

J. Passive recreation such as hiking, fishing, and wildlife viewing that does not involve the construction of trails.

K. Vegetation clearing and soil disturbance with less than five hundred square feet disturbance to critical areas associated with land surveying, geotechnical investigations, water well drilling, or other site work completed in conjunction with the preparation of a critical areas report.

1.126 Variance.

A variance from the requirements of SMP Appendix A may be authorized by the hearing examiner through the Shoreline Variance process in accordance with the procedures set forth in SMP Section VII.

1.127 Mitigation required.

Any authorized alteration to a wetland or fish and wildlife habitat conservation area or its associated buffer, as approved under Sections 1.121 through 1.125 of SMP Appendix A, shall be subject to conditions established by the city and shall be required to mitigate alterations under an approved mitigation plan per Section 1.200(I).

1.130 Density credits.

A. Critical areas and their buffers may be used in the calculation of allowed residential density whenever two or more residential lots or two or more multifamily dwelling units are created, subject to the following limitations:

1. Density credits shall be allowed for all critical areas, with the exception of wetlands or streams, and all critical area buffers, in accordance with the following table:

Percent of Site in Buffers and/or Critical Areas	Density Credit
1--10 percent	100 percent
11--20	90
21--30	80
31--40	70
41--50	60
51--60	50
61--70	40
71--80	30

Percent of Site in Buffers and/or Critical Areas	Density Credit
81--90	20
91--99	10

2. The density credit may only be utilized within the development proposal site. The applicant may cluster and configure the site's development to accommodate the transfer of density subject to the requirements of this title, but may not change the type of uses allowed within the underlying zone.

B. For development proposals involving sites containing critical areas and associated critical area buffers, the Shoreline Administrator or his or her designee shall determine allowable dwelling units for residential development proposals based on the formulas below.

1. The percentage of the lot containing critical areas, excluding wetlands and streams, and all critical area buffers, shall be calculated based on the critical areas report submitted as per SMP Appendix A.

2. The amount of density credit allowed shall be calculated based on the table in subsection (A)(1) of this section.

3. The minimum permissible lot size shall be calculated as follows:

a. Determine the Critical Area Yield: Multiply the area containing critical areas or their buffers by seventy percent, and divide that number by the minimum lot size of the underlying zone.

Multiply the quotient by the density credit percentage from the table in subsection (A)(1) of this section. Round upward or downward to the nearest whole number.

b. Determine the Noncritical Area Yield: Multiply the area that does not contain critical areas or their buffers by seventy percent, and divide that number by the minimum lot size of the underlying zone. Round upward or downward to the nearest whole number.

c. Determine the Total Yield: Add the critical area yield to the noncritical area yield.

d. Determine the ratio by dividing the noncritical area yield by the total yield.

e. Multiply the ratio by the minimum lot size of the underlying zone to determine the minimum size of the lots that may be subdivided in the area that does not contain critical areas.

4. To the extent that application of the above formula may result in lot sizes less than the minimum allowed by the underlying zone, they are authorized; provided, that in no case shall the lot sizes resulting from the density credit be smaller than sixty-five percent of the minimum lot size of the underlying zone. In any case, all other established setbacks and requirements of the underlying zone shall be met, pursuant to this title.

1.200 General provisions.

The city will apply the following general methods and mechanisms to accomplish the purposes of its SMP Appendix A. This section shall be applied to all approved development applications and alterations in shoreline jurisdiction where critical areas may be affected.

A. General Approach. Protecting critical areas shall observe the following sequence, unless it is part of a restoration plan for a significantly degraded wetland or fish or wildlife habitat conservation area, or buffer, described under subsection (B)(3), below:

1. Avoid the impact by refraining from certain actions or parts of an action;

2. Where impact will not be avoided to critical areas or their buffers, the applicant shall demonstrate that the impact meets the criteria for granting a Shoreline Variance under SMP Section 7.VII;
3. Minimize the impacts by limiting the degree or magnitude of the action by using affirmative steps to avoid or reduce impacts or by using appropriate technology;
4. Rectify the impact by repair, rehabilitation, or restoration of the affected critical areas;
5. Reduce or eliminate the impact over time by preservation and maintenance operations;
6. Compensate for the impacts with ways to create, replace, enhance or provide substitute resources or critical areas.

B. Buffers.

1. Measurement of Buffers. All buffers shall be measured from the critical area boundary as surveyed in the field or as otherwise designated or described by the Shoreline Administrator. The width of the buffer shall be determined according to the methods and procedures described in SMP Appendix A pursuant to each type of critical area affected.

2. Standard Buffers. The standard buffer widths presume the existence of a native forest vegetation community in the buffer zone adequate to protect the critical area functions and values at the time of the proposed activity. If the vegetation or protection area is inadequate, the city may require an increase in the buffer width or additional native plantings within the standard buffer width. Provisions to reduce or to average buffer widths to obtain optimal habitat value are provided under the performance standards for each critical area.

3. Significantly Degraded Wetlands, Fish and Wildlife Habitat Conservation Areas, and Buffers. In areas where the functions of wetlands and fish and wildlife habitat conservation areas or buffers are already significantly degraded prior to the effective date of SMP Appendix A, restoration of the degraded areas may be more beneficial than avoidance. Certain expanded uses shall be allowed at the discretion of the Shoreline Administrator or his designee if the applicant's critical areas report demonstrates that greater habitat functions can be obtained in the affected sub-drainage basin as a result of mitigation.

4. Averaging Buffers. The Shoreline Administrator or his designee will consider allowing buffer averaging only when the averaged buffer area width will not adversely impact the critical area and/or buffer functions and values. At a minimum, any proposed buffer averaging shall meet the following criteria:

- a. The total averaged buffer area is not less than the size of the standard buffer before applying averaging;
- b. The buffer width shall not be reduced by more than twenty-five percent at any one point as a result of the buffer averaging;
- c. The averaged buffer area shall be enhanced;
- d. The additional buffer is contiguous with the standard buffer; and
- e. Encroachment into the buffer does not occur waterward of the top of an associated steep slope or into a channel migration zone.

~~5. Reducing Buffers. The city manager or his designee may reduce up to twenty-five percent of the critical area buffer width requirement only if a critical area report sufficiently demonstrates the following:~~

- ~~a. The applicant has demonstrated that mitigation sequencing (avoid, minimize, mitigate) efforts have been appropriately applied;~~

- ~~b. The proposed buffer reduction shall be accompanied by a mitigation plan per subsection I of this section that includes enhancement of the reduced buffer area;~~
- ~~c. The reduction will not adversely affect water quality;~~
- ~~d. The reduction will not destroy, damage, or disrupt a significant habitat area;~~
- ~~e. The reduction is necessary for reasonable development of the subject property;~~
- ~~f. Where a legally established roadway transects the buffer, the minimum buffer width may be reduced to the edge of the roadway if the part of the buffer sought to be reduced:~~
 - ~~i. Does not provide additional protection to the proposed development or the stream, and~~
 - ~~ii. Does not perform any biological, geological, or hydrological buffer functions to undisturbed portions of the streams or its buffer;~~
- ~~g. This section may not be used to reduce the buffers of the Tolt or Snoqualmie Rivers.~~

C. Land Segregation. Subdivisions, short subdivisions, boundary line adjustments, and planned residential developments of land located in critical areas and associated buffers are subject to the following:

1. Land that is wholly within a wetland or fish and wildlife habitat conservation area or associated buffer may not be subdivided or the boundary line adjusted except as approved under a Shoreline Variance.
2. Land that is partially within a wetland or fish and wildlife habitat conservation area or associated buffer area may be subdivided, or the boundary line adjusted, provided that an accessible and contiguous portion of each new or adjusted lot is:
 - a. Located outside the critical area and buffer; and
 - b. Sizable enough to accommodate the intended (and allowable) use.

D. Marking and/or Fencing.

1. Survey Stakes. Development proposals shall include permanent survey stakes delineating the boundary between adjoining property and critical area tracts using iron or concrete markers as established by current survey standards.
2. Permanent Signs. The applicant shall identify the boundary between a critical area tract and contiguous land with permanent signs.
3. The Shoreline Administrator or his designee may require such fencing subsequent to approval of the development proposal when intrusions threaten conservation of critical areas. To ensure compliance, the Shoreline Administrator or his designee may use any appropriate enforcement actions including, but not limited, to fines, abatement, or permit denial.

E. Critical Areas Reports/Studies.

1. When an applicant submits a development proposal, the proposal shall indicate whether any critical areas or buffers are located on or could be within three hundred feet of the proposed development site. The city staff shall visit the proposed development site and review the information submitted by the applicant along with any other available information. The city staff shall notify the applicant that a critical areas report is required if the city determines that the proposed site may include, is adjacent to, or that the proposal could have probable adverse impacts to critical areas (except that critical area reports for CARAs shall only be required as specified in Section 1.400(D)). If required, the report shall be undertaken at the applicant's expense. A critical areas report shall meet the following minimum requirements:

- a. Critical area reports shall be written by a qualified professional, as defined in the definitions section of SMP Appendix A. A critical areas report shall include all information required pursuant to subsection (E)(2) below.
 - b. When unavoidable impacts to critical areas or their buffers would occur, a monitoring and maintenance program shall be designated by a qualified professional and the applicant shall conduct monitoring to evaluate the effectiveness of mitigating measures.
 - c. Studies generated as part of an expanded SEPA environmental checklist or an environmental impact statement (EIS) may qualify as a critical areas report if the project is described in enough detail to provide an evaluation of site-specific impacts and mitigation measures.
2. General Critical Areas Report Requirements.
- a. A critical areas report shall have three components: (i) a site analysis, (ii) impact analysis, and (iii) proposed avoidance and mitigation measures. More or less detail may be required for each component depending on the size of the project, severity of the intrusion, and the potential impacts. When adequate information is otherwise available to document compliance with SMP Appendix A, the Shoreline Administrator or his designee may waive the requirement of any of the three components.
 - b. Unless already available in the development application, all studies shall contain the following information in addition to the requirements specified for each critical area.
 - i. Site map of the project area at a one is to twenty or larger scale dimensioned, including:
 - (A) Reference streets and property lines.
 - (B) Existing and proposed easements, rights-of-way, trail corridors and structures.
 - (C) Contour intervals (two feet); steep slope areas to be highlighted.
 - (D) Vicinity map showing project location in relation to city-designated critical areas as shown on mapping available from the city.
 - (E) The edge of the one-hundred-year floodplain, and edge of the floodway if appropriate.
 - (1) Channel migration zone boundaries if appropriate;
 - (2) Shoreline Master Program environment designation;
 - (3) Location of wetlands and fish and wildlife habitat conservation areas or other critical areas on the site;
 - (4) Hydrology. Show surface water features both on and adjacent to the site; show any water movement into, through, and off the project area; show stream and wetlands classifications; show seeps, springs, and saturated soil zones; label wetlands not found on the city inventory maps as un-inventoried;
 - (5) Identification of all site preparation, clearing and grading activities and dimensioned location of proposed structures, roads, stormwater facilities, impervious surfaces, and landscaping within three hundred feet of critical areas;
 - (6) All drainage plans for discharge of stormwater runoff from developed areas;
 - (7) Location of standards and proposed buffer and building setback lines (if required or proposed);
 - (8) Location of any existing or proposed critical area tracts.
 - ii. Written report detailing.
 - (A) How, when, and by whom the report was performed (including methodology and techniques);
 - (B) Seasonal and weather conditions during and prior to any field studies if relevant to conclusions and recommendations;
 - (C) Description of the project site and its existing condition, including degraded critical areas;

- (D) Description of existing critical area and buffer functions and values;
- (E) Description of habitat features present and determination of actual use of the critical area by any endangered, threatened, rare, sensitive, or unique species of plants or wildlife as listed by the federal government or state of Washington;
- (F) The total acreage of the site in each type of critical area(s) and associated standard buffers;
- (G) The proposed action, including but not limited to description of filling, dredging, modification for stormwater detention or discharge, clearing, grading, restoring, enhancing, grazing or other physical activities that change the existing vegetation, hydrology, soils or habitat;
- (H) When alteration to a critical area or its buffer is proposed provide an explanation why the impact is unavoidable and how it meets the criteria for a defined exception or allowed use;
- (I) Description of potential environmental impact of the proposed project to the critical area(s) and demonstration of mitigation sequencing approach, and description of any proposed mitigation measures;
- (J) Habitat and native vegetation conservation strategy that addresses methods to protect and enhance on-site critical area functions;
- (K) The mitigation measures and best management practices proposed to avoid or lessen the project impacts (during construction and permanently);
- (L) When alteration to the critical area or its buffer is proposed, include a mitigation plan as specified by SMP Appendix A;
- (M) A discussion of ongoing management practices that will protect critical areas and their buffers after the project site has been developed, including proposed monitoring and maintenance programs;
- (N) Description of local, state, and federal regulations and permit requirements that regulate the proposed development, use, and/or critical area and that apply to the proposal.

F. Mitigation Timing.

1. Mitigation shall be provided prior to the authorized activity that results in unavoidable impacts, except in the case of restoration and enhancement. For restoration and enhancement, mitigation shall be completed immediately following disturbances and prior to use or occupancy of the activity or development. Construction of mitigation projects shall be timed to reduce impacts to existing fisheries, wildlife, and water quality. Off-site mitigation activities shall be completed prior to initiating the activity or development. Any proposed deviations to mitigation timing based on seasonal considerations shall be approved in advance by the Shoreline Administrator or his designee.
2. The Shoreline Administrator or his designee shall have the authority to impose the mitigation measures identified in SMP Appendix A or recommended in a critical areas report as a condition of any development approval or other activity creating the need for mitigation. The Shoreline Administrator or his designee may alter the mitigation recommended in a critical areas report if the recommendations are not consistent with the most current, accurate, and complete scientific and technical information available that is applicable to the issues of concern or otherwise fail to adequately protect critical areas. Any mitigation measures imposed through SMP Appendix A shall be consistent with constitutional principles of nexus and proportionality. The hearing examiner and city council shall have the authority of the Shoreline Administrator to impose mitigation measures to the extent that they have authority to review a development application. The mitigation measures identified herein may also be imposed through the

Washington State Environmental Policy Act ("SEPA"), Chapter 43.21C RCW. SMP Appendix A is adopted as a SEPA policy for purposes of exercising SEPA substantive authority as authorized by RCW 43.21C.060. In the event of conflicts between mitigation imposed by SMP Appendix A or any other law, the more restrictive mitigation measures shall prevail.

3. The Shoreline Administrator or his designee may waive any or all of the requirements of a critical area report if the applicant demonstrates that the required information will not be of any benefit in assessing and mitigating adverse impacts.

G. General Mitigation Requirements. The following section provides general mitigation requirements applicable to alteration of critical areas. Additional specific mitigation requirements are found under the sections for the particular type of critical area.

1. When a critical area or its buffers has been altered on the development site prior to approval of the development permit in violation of city regulations, and, as a consequence, the functions and values have been degraded, restoration and/or rehabilitation is required.

Restoration/rehabilitation is required when a critical area or its buffer has been altered during the construction of an approved project as a result of the failure of the applicant to disclose the occurrence of the critical area on the property. At a minimum, all impacted areas shall be restored to their previous condition pursuant to an approved mitigation plan.

2. When a critical area or its buffers will be temporarily altered during the construction, restoration and/or rehabilitation is required. At a minimum, all impacted areas shall be restored to their previous conditions to comply with the approved mitigation plan.

3. Compensation includes replacement or enhancement of the critical area or its buffer depending on the scope of the approved alteration and what is needed to maintain or improve the critical area and/or buffer functions. The goal of compensation is no net loss of critical area/or buffer functions on a development site. The Shoreline Administrator or his designee may approve compensation to include replacement of similar critical areas or buffer functions through the creation of enhancement or rehabilitation of other types of critical areas or buffers as part of a mitigation bank or other pre-approved off-site mitigation proposal. Compensation for approved critical area or buffer alterations shall meet the following minimum performance standards and shall occur in compliance with the approved mitigation plan:

a. As compensation for approved alterations, a created, restored, or enhanced critical area buffer shall meet the category requirements of the created, restored, or enhanced critical area. Created, restored, or enhanced buffers shall be fully vegetated and shall not include lawns, walkways, driveways and other mowed or paved areas.

b. On-site and In-kind. Unless otherwise approved, all critical area impacts shall be compensated by restoration or creation of replacement areas that are in-kind, on-site, and of similar or better critical area category. Mitigation shall occur prior to, or concurrent with, the approved alteration and shall have a high probability of success.

c. Off-site Mitigation. When the applicant demonstrates that greater biological and hydrological functions and values will be achieved, the Shoreline Administrator or his designee may consider, and approve, off-site compensation. Off-site compensation may include restoration, creation, or enhancement of other types of critical areas than those impacted. The compensation ratios specified under the "on-site" compensation section for each critical area shall apply for off-site compensation. At no time shall the off-site mitigation result in a smaller mitigation area than the area of the impacted critical area or buffer.

- d. Increased Replacement Ratios. The Shoreline Administrator or his designee may increase the ratios under the following circumstances:
 - i. Uncertainty exists as to the probable success of the proposed restoration or creation due to an unproven methodology or applicant; or
 - ii. The applicant proposes out-of-kind mitigation; or
 - iii. A significant time period will elapse between impact and replication of wetland functions; or
 - iv. The impact was unauthorized.
- e. Decreased Replacement Ratios. The Shoreline Administrator or his designee may decrease the ratios specified under the compensation section of each critical area as required from the "on-site" ratios, when all of the following criteria are met:
 - i. A minimum replacement ratio of one to one (no net loss) will be maintained;
 - ii. Documentation by a qualified specialist demonstrates that the proposed mitigation actions have a very high rate of success;
 - iii. Documentation by a qualified specialist demonstrates that the proposed mitigation actions will provide functions and values that are significantly greater than the critical area being impacted; and
 - iv. The proposed mitigation actions are conducted in advance of the impact and have been shown to be successful as established through the implementation of a monitoring program.
- f. Critical Area Enhancement as Mitigation.
 - i. Impacts to critical areas may be mitigated by enhancement of existing significantly degraded critical areas only after a one to one minimum acreage replacement ratio (one to one linear feet ratio for streams) has been satisfied. Development applications that propose to enhance critical areas must produce a critical areas report that identifies how enhancement will increase the functions and values of the degraded critical areas and how this increase will adequately mitigate for the loss of critical area function at the impact site.
 - ii. At a minimum, enhancement acreage shall be double that of the acreage (or linear feet for streams) required for creation under the "on-site" compensation section specified under each critical area. The ratios shall be greater than double the required acreage (or linear feet) when the enhancement proposal would result in minimal gain in the performance of critical area functions currently provided in the critical area.

H. Most Current Science. Any approved mitigation plan to compensate for impacts to a critical area or its buffer shall be supported by the most current, accurate, and complete scientific and technical information available that is applicable to the issues of concern documented at the time of the application.

I. Mitigation Plans.

1. Mitigation or alterations to critical areas shall achieve equivalent or greater biological functions for wetlands and fish and wildlife conservation areas, and shall include mitigation for adverse impacts that would affect property beyond to the proposal site. Mitigation sites for wetlands, streams, and fish and wildlife habitat conservation areas shall be located to achieve contiguous habitat corridors in accordance with a mitigation plan that is part of an approved critical areas report to minimize the isolating effects of development on habitat areas. Mitigation of aquatic habitat shall be located within the same subbasin as the area disturbed unless the applicant proposed to utilize available mitigation bank credits pursuant to this section. Mitigation

shall address each function affected by the alteration to achieve functional equivalency or improvement on a per function basis.

2. The scope and content of a mitigation plan shall be decided on a case-by-case basis. As the impacts to the critical area increase, the mitigation measures to offset these impacts also will increase in number and complexity. During its review of the requested critical area studies, the city will determine which of the components listed below in subsection (I)(3) shall be required as part of the mitigation plan. Key factors in this determination shall be the size and nature of the development proposal, the nature of the impacted critical areas, and the degree of cumulative impacts on the critical area from other development proposals.

3. At a minimum, the following components shall be included in a complete mitigation plan:

a. **Baseline Information.** Provide existing conditions information for both the impacted critical areas and the proposed mitigation site as described in "general critical area report requirements" and "additional report requirements" for each critical area.

b. **Environmental Goals and Objectives.** The mitigation plan shall include a written report identifying environmental goals and objectives of the compensation proposed and including:

i. A description of the anticipated impacts to the critical areas, the mitigating actions proposed, and the purposes of the compensation measures, including the site selection criteria, identification of compensation goals, identification of resource functions, and dates for beginning and completing site compensation construction activities. The goals and objectives shall be related to the functions and values of the impacted critical area; and

ii. A review of the most current, accurate, and complete scientific and technical information available that is applicable to the issues of concern supporting the proposed mitigation.

c. **Performance Standards.** The mitigation plan shall include measurable performance standards to evaluate whether or not the goals and objectives of the mitigation plan have succeeded and whether or not the plan meets the requirements of SMP Appendix A. Performance standards may include water quality standards, species richness and diversity targets, habitat diversity indices, or other ecological, geological, or hydrological criteria.

d. **Detailed Construction Plan.** These are landscape and/or engineering drawings and the written specifications and descriptions of mitigation technique. This plan should include the proposed construction sequencing, grading and excavation details, erosion and sedimentation control features, a native planting plan, and detailed site diagrams and any other drawings appropriate to show construction techniques or anticipated final outcome.

e. **Monitoring and/or Evaluation Program.** The mitigation plan shall include a program for monitoring construction of the compensation project, and for assessing a completed project, as detailed under subsection J below.

f. **Contingency Plan.** When monitoring or evaluating the plan indicates that the applicant has not met the performance standards, a contingency plan shall identify potential courses of action and any corrective measures to be taken.

J. Monitoring.

1. When a development application to alter critical areas or their buffers is approved or where alterations occur in violation of SMP Appendix A, the city will require long-term monitoring. Monitoring shall be part of the required mitigation plan and shall document and track impacts of development on the functions and values of critical areas and will track the success and failure of mitigation requirements. Monitoring may include, but is not limited to:

- a. Establishing vegetation transects or plots to track changes in plant species composition over time;
 - b. Using aerial or other photography to evaluate vegetation community response;
 - c. Sampling surface and ground waters to determine pollutant loading;
 - d. Measuring base flow rates and stormwater runoff to model and evaluate water quantity predictions;
 - e. Measuring sedimentation rates;
 - f. Sampling fish and wildlife populations to determine habitat utilization, species abundance, and diversity; and
 - g. Sampling of water temperatures for wetlands and streams.
2. The applicant will be required to submit monitoring data and reports to the city on an annual basis or other schedule as required by the Shoreline Administrator or his designee. Monitoring shall continue for a minimum period of five years. Longer periods may be required to establish that the mitigation performance standards have been met. The Shoreline Administrator or his designee may approve a monitoring period of ten years if there is significant uncertainty involved in the mitigation proposal.
 3. Performance Bond. Prior to issuance of any permit or approval that authorizes site disturbance under SMP Appendix A, the Shoreline Administrator or his designee shall require performance security in a form and amount deemed acceptable by the city to cover long term monitoring, maintenance, and replacement costs for mitigation projects to ensure mitigation is fully functional for the duration of the monitoring period. Bonds or other security for required mitigation projects shall be held by the city for a minimum of five years or until all performance standards have been achieved to ensure that the mitigation project has been fully implemented and demonstrated to function. The bond may be held for longer periods upon written finding by the city that it is still necessary to hold the bond to ensure the mitigation project has meet all elements of the approved mitigation plan.

K. Contingencies/Adaptive Management. When monitoring reveals a significant deviation from predicted impacts or the failure of mitigation measures, the applicant shall be responsible for appropriate corrective action. Contingency plans developed as part of the original mitigation plan shall apply but may be modified to address a specific deviation or failure. Contingency plan measures shall extend the monitoring period and shall be subject to the monitoring requirement to the same extent as the original mitigation measures.

L. Habitat Management Plans.

1. A habitat management plan is an alternative method for compliance with the intent of these critical areas regulations for wetlands and fish and wildlife habitat conservation areas. Preparation of a habitat management plan provides an applicant the opportunity to seek relief from the provisions of SMP Appendix A when the Shoreline Variance criteria cannot be met or when innovative development is proposed while protecting and enhancing wetland and fish and wildlife habitat resources.
2. A habitat management plan shall be prepared by a qualified professional and shall include the following:
 - a. A critical areas report as specified in subsection E of this section, as well as specified under wetlands (Section 1.300) and fish and wildlife habitat conservation areas (Section 1.500);

- b. An analysis of how the preferred development proposal will affect the wetland or fish and wildlife habitat conservation area and any priority species;
- c. A comparative analysis of the benefits to habitat resources of the preferred development proposal, including scientific basis, with the development if it were to comply with the development regulations as specified in SMP Appendix A;
- d. Mitigation and monitoring plans as specified in this section as well as specified under wetlands (Section 1.300) and fish and wildlife habitat conservation areas (Section 1.500);
- e. Mitigation and monitoring plans shall include methods and processes such as innovative restoration techniques to restore degraded habitat; use of low impact development techniques; connecting habitat corridors that have a primary association with a listed species; collaborating with WDFW on innovative protection, enhancement or monitoring methods or otherwise advancing the science on mitigation and monitoring.

1.300 Wetlands.

A. Purpose. The purpose of the wetland critical areas provisions is to protect existing wetlands and maintain no net loss of their functions and values.

B. Designation. Identification of wetlands and delineation of their boundaries pursuant to this chapter shall be determined by a qualified professional in accordance with the most current approved federal wetland delineation manual and applicable regional supplements. All areas within the City meeting the wetland designation criteria in that procedure are hereby designated critical areas and are subject to the provisions of this section.

C. Wetland Rating. Determination of wetland ratings will be based on the entire extent of wetlands, unrelated to property lines or ownership patterns. For the purpose of categorization, wetlands shall be designated according to the Washington State Wetland Rating System for Western Washington (Ecology Publication #0414-06-025029): Wetlands shall be designated as follows:

1. Category I. Are those wetlands that represent unique or rare wetland types, are more sensitive to disturbance than most wetlands, are relatively undisturbed and contain ecological attributes that are impossible to replace within a human lifetime, or provide a high level of functions. Category I ~~Are those~~ wetlands are those that meet any of the following criteria:

- a. Wetlands that perform many functions well;
- b. Wetlands of high conservation value that are identified by scientists of the Washington Natural Heritage Program/DNR as high quality wetlands or wetlands that support state listed threatened or endangered plants;
- c. Bogs; or
- d. Mature and old growth forested wetlands larger than one acre. ~~Wetlands that score seventy or more points (out of one hundred) in the Washington State Wetland Rating System for Western Washington;~~
- ~~b. Wetlands identified by scientists of the Washington Natural Heritage Program/DNR as high quality wetlands or wetlands that support state listed threatened or endangered plants;~~

~~e. Bogs larger than one-fourth acre in size; or~~

~~d. Mature and old-growth forested wetlands larger than one acre.~~

2. Category II. Are those wetlands with a moderately high level of functions. Are those wetlands that meet any of the following criteria:

~~a. Wetlands that score between fifty-one and sixty-nine points in the Washington State Wetland Ratings System for Western Washington; or~~

~~b. A bog between one-fourth and one-half acre in size.~~

3. Category III. Are those wetlands with a moderate level of functions that can often be adequately replaced with a well-planned mitigation project. These wetlands have been disturbed in some ways and are often less diverse or more isolated from other natural resources in the landscape than Category II wetlands. Are those wetlands that score between thirty and fifty points in the Washington State Wetland Ratings System for Western Washington.

4. Category IV. Are those wetlands that have the lowest levels of functions and are often heavily disturbed. These are wetlands that should be able to be replaced, or in some cases improved. However, experience has shown that replacement cannot be guaranteed in any specific case. These wetlands may provide some important functions, and should be protected to some degree.

~~Are those wetlands that score less than thirty points in the Washington State Wetland Ratings System for Western Washington.~~

5. Any wetlands created as compensation for approved wetland alteration shall be designated as the same category as the wetland it replaces and shall be considered a critical area and subject to all provisions of this SMP and SMP Appendix A.

C. Buffers. The standard buffer widths (as defined below) presume the existence of a native forest community in the buffer zone adequate to protect the wetland functions and values at the time of the proposed activity. If existing vegetation composition or structure is inadequate, then the buffer width shall be increased or the buffer should be enhanced through planting to create a functional buffer. Required standard wetland buffers, based on wetland category and land use intensity, are as follows:

Intensity of Adjacent Land Use	Category I	Category II	Category III	Category IV
High intensity	300'	200' 300'	100' 150'	50'
Moderate intensity	250' 225'	150' 225'	175' 110'	35' 40'
Low intensity	200' 150'	100' 150'	50' 75'	35' 25'

2. Any wetland created as compensation for an approved wetland alteration shall meet the standard buffer requirements for the new category of the created wetland or the category of the impacted wetland, whichever is greater. Created wetlands shall be located in such a way that the new associated wetland buffer does not cross onto adjacent property unless that property is owned by the owner of the subject property.

D. General Performance Standards. The requirements provided in this section supplement those identified in Section 1.200 General provisions. Activities and uses shall be prohibited from wetlands and wetland buffers, except as provided by SMP Appendix A.

E. Permitted Alterations. The following activities may only be permitted in a wetland or wetland buffer if the applicant can demonstrate that the activity will not degrade the functions and values of the wetland and other critical areas. The Shoreline Administrator or his designee may require the preparation of a critical area report to confirm compliance with the requirements of SMP Appendix A.

1. Conservation or preservation activities that improve the function of the existing wetland.
2. Modifications to existing structures where no further alteration or increase in footprint will occur.
3. Trails. Public and private trails may be allowed within all wetland buffers when a critical areas report can demonstrate that the wetland and wetland buffer functions and values will not be degraded by trail construction or use. Trail planning, construction, and maintenance shall adhere to the following criteria:
 - a. Trail alignment shall follow a path beyond a distance from the wetland edge equal to seventy-five percent of the buffer width except as needed to access viewing platforms. Trails may be placed on existing levees or railroad grades within these limits;
 - b. Trails and associated viewing platforms shall be constructed of pervious materials, unless necessary for conformance to the Americans with Disabilities Act. The trail surface shall meet all other requirements, including water quality standards set forth in the Washington State Department of Ecology Stormwater Management Manual for Western Washington, April 2005 or as revised;
 - c. Trail alignment shall avoid trees in excess of six inches in diameter of any tree trunk at a height of four and one-half feet above the ground on the upslope side of the tree;
 - d. Trail construction and maintenance shall follow the U.S. Forest Service Trails Management Handbook (FSH 2309.18, April 1993 or as revised) and Standard Specifications for Construction and Maintenance of Trails (EM-7720-103, September 1996 or as revised);
 - e. Access trails to viewing platforms within the wetland may be provided. Trail access and platforms shall be aligned and constructed to minimize disturbance to valuable functions of the wetland or its buffer and still provide enjoyment of the resource;
 - f. Buffer widths shall be increased, where possible, equal to the width of the trail corridor, including disturbed areas; and
 - g. Equestrian trails shall be located or measures provided to assure that runoff from the trail does not directly discharge to the wetland.
4. Stormwater Management Facilities. Stormwater management facilities are not allowed in Category I and II wetlands and buffers. Category I and II, III, and IV wetlands may receive runoff from sources such as roof drains and footing drains when in accordance with the local stormwater code and when such runoff is demonstrated as beneficial to wetland functions. The outer twenty-five percent of Category III and IV wetland buffers may be used for detention/retention areas where the applicant can demonstrate no practical alternative and that such use is beneficial to wetland functions. Enhanced treatment is required prior to discharge to such wetlands, and a stormwater facility maintenance plan shall be submitted.
5. Public Roads and Utilities. Footprint expansion of public roads and utilities may take place to maintain local levels of service, and to provide for and protect public safety when there is no feasible option with less impact and the width of the corridor is minimized to the maximum extent possible. Public and private utility corridors may be allowed within wetland buffers for Category II, III, and IV wetlands when no lesser impacting alternative alignment is feasible, and wetland and wetland buffer functions and values will not be degraded. Whenever possible,

utilities shall be constructed in existing, improved roads, on drivable surface or shoulder, and shall be subject to compliance with road maintenance BMPs, or constructed within an existing utility corridor. Otherwise, corridor alignment, construction, restoration and maintenance shall adhere to the following criteria:

- a. Corridor alignment shall follow a path beyond a distance from the wetland edge equal to seventy-five percent of the buffer width, except when crossing a Category IV wetland and its buffer;
- b. Corridor construction and maintenance shall maintain and protect the hydrologic and hydraulic functions of the wetland and the buffer;
- c. Corridors shall be fully revegetated with appropriate native vegetation upon completion of construction; and
- d. Utilities requiring maintenance roads shall be prohibited in wetland buffers unless the following criteria are met:
 - i. There are no lesser impacting alternatives,
 - ii. Any required maintenance roads shall be no greater than fifteen feet wide. Roads shall closely approximate the location of the utility to minimize disturbances, and
 - iii. The maintenance road shall be constructed of pervious materials and designed to maintain and protect the hydrologic functions of the wetland and its buffer.

6. Category IV Wetlands. Allowable uses and activities shall include all uses and activities identified in Section 1.200(E)(1) through (E)(5) above. In addition, activities and uses that result in unavoidable and necessary impacts may be permitted in Category IV wetlands and associated buffers in accordance with an approved critical areas report and mitigation plan, and only if the proposed activity is the only reasonable alternative that will accomplish the applicant's objective.

F. Critical Areas Report/Study. In addition to the general requirements for critical areas reports provided under Section 1.200 General provisions, wetland critical area reports shall include the following:

1. On the site map:
 - a. The edge of the wetland as flagged and surveyed in the field using the most recent approved federal wetland delineation manual and applicable regional supplements;
 - b. The location of any proposed wetland area(s) to be created through mitigation measures; and
 - c. The location of any proposed wetland alteration or fill.
2. In the report:
 - a. Description of the wetland by classification per the most recent version of the Washington State Wetland Rating System for Western Washington (Ecology Publication ~~#14-06-029#04-06-025~~, or as revised);
 - b. General condition of wetland;
 - c. Description of vegetation species and community types present in the wetland and surrounding buffer;
 - d. Description of soil types within the wetland and the surrounding buffer using the USDA Natural Resources Conservation Service soil classification system; and
 - e. Description of hydrologic regime and findings.

G. Wetland Mitigation Requirements. No net loss of wetland functions and values shall occur as a result of the overall project. If a wetland alteration is permitted, then the associated impacts will be considered unavoidable. In addition to the requirements in Section 1.200 General

provisions, the following mitigation measures to minimize and reduce wetland impacts shall be required:

1. Mitigation shall achieve equivalent or greater biological functions. Mitigation plans shall be consistent with the state Department of Ecology guidelines found in Wetland Wetland in Washington State – Part 2: Developing Mitigation Plans (Version 1), 2006 (or as revised).
2. Preference of Mitigation Actions. Mitigation actions that require compensation shall occur in the following order of preference:
 - a. Restoring wetlands on upland sites that were formerly wetlands.
 - b. Creating wetlands on disturbed upland sites such as those with vegetation cover consisting primarily of nonnative introduced species. This should only be attempted when there is a consistent source of hydrology and it can be shown that the surface and subsurface hydrologic regime is conducive for the wetland community that is designed.
 - c. Enhancing significantly degraded wetlands only after a minimum one is to one replacement ratio has been met.
3. On-site and Off-site Mitigation. Unless otherwise approved, all wetland impacts shall be compensated for through restoration or creation of replacement wetlands that are in-kind, on-site, and of similar or better wetland category. Mitigation shall be timed prior to or concurrent with the approved alteration and shall have a high probability of success. The following ratios shall apply to wetland restoration and creation for mitigation:

Category and Type of Wetland Impacts	Re-establishment or Creation	Rehabilitation Only ¹	Re-establishment or Creation (R/C) and Rehabilitation (RH) ¹	Re-establishment or Creation (R/C) and Enhancement (E) ¹	Enhancement Only ¹
All Category IV	1.5:1	3:1	1:1 R/C and 1:1RH	1:1 R/C and 2:1 E	6:1
All Category III	2:1	4:1	1:1 R/C and 2:1 RH	1:1 R/C and 4:1 E	8:1
Category II	3:1	6:1	1:1 R/C and 4:1 RH	1:1 R/C and 8:1 E	12:1
Category I Forested	6:1	12:1	1:1 R/C and 10:1 RH	1:1 R/C and 20:1 E	24:1
Category I - based on score for functions	4:1	8:1	1:1 R/C and 6:1 RH	1:1 R/C and 12:1 E	16:1
Category I Natural Heritage site	Not allowed	6:1 Rehabilitation of a Natural Heritage site	Not allowed	Not allowed	Case-by-case
Category I Bog	Not allowed	6:1 Rehabilitation of a bog	Not allowed	Not allowed	Case-by-case

¹ These ratios are based on the assumption that the rehabilitation or enhancement actions implemented represent the average degree of improvement possible for the site. Proposals to implement more effective rehabilitation or enhancement actions may result in a lower ratio, while less effective actions may result in a higher ratio. The distinction between rehabilitation and enhancement is not clear-cut. Instead, rehabilitation and enhancement actions span a continuum. Proposals that fall within the gray area between rehabilitation and enhancement will result in a ratio that lies between the ratios for rehabilitation and the ratios for enhancement.

1.400 Critical aquifer recharge areas.

A. Purpose. The purpose of the critical aquifer recharge area (CARA) provisions is to protect groundwater quality and quantity for public water supply and to maintain hydrologic functions of aquatic areas. CARAs contribute to the replenishment of groundwater and, due to their prevailing geologic conditions associated with infiltration rates, have a high potential for contamination of groundwater resources.

B. Designation. Critical aquifer recharge areas are areas to be determined by the city to have a critical recharging effect on aquifers used for potable water consistent with WAC 365-190-030(2) and as designated on maps to be located in Carnation City Hall.

1. Critical aquifer recharge areas are categorized as follows:

- a. Category I critical aquifer recharge areas include those areas designated on the critical aquifer recharge area map as highly susceptible to groundwater contamination and that are located within a sole source aquifer or wellhead protection area.
- b. Category II critical aquifer recharge areas include those mapped areas designated that:
 - i. Have a medium susceptibility to groundwater contamination and are located in a sole source aquifer or wellhead protection area; or
 - ii. Are highly susceptible to groundwater contamination and are not located in a sole source aquifer or wellhead protection area.
- 2. An applicant may request the city to declassify a specific area included in the city's CARA designation map. The request must be supported by a critical areas report that includes a hydrogeologic assessment by a qualified professional. The city shall review the request to declassify an area and shall make a determination to amend the CARA designation map as appropriate.

C. Prohibited Uses and Activities.

- 1. The following uses or activities are prohibited in designated Category I critical aquifer recharge areas:
 - a. Hazardous liquid pipelines;
 - b. Sand and gravel, and hard rock mining on land that is not zoned for mining as of the effective date of SMP Appendix A;
 - c. Mining of any type below the groundwater table;
 - d. Processing, storage, and disposal of radioactive wastes;
 - e. Hydrocarbon extraction;
 - f. Commercial wood treatment facilities on permeable surfaces;
 - g. Golf courses;
 - h. Cemeteries;
 - i. Wrecking yards; and
 - j. Landfills for hazardous waste, municipal solid waste, or special waste.
- 2. The following uses and activities are prohibited in a designated Category II critical aquifer recharge area:
 - a. Mining of any type below the water table;
 - b. Processing, storage, and disposal of radioactive substances;
 - c. Hydrocarbon extraction;
 - d. Commercial wood treatment facilities on permeable surfaces;
 - e. Wrecking yards; and
 - f. Landfills for hazardous waste, municipal solid waste, or special waste.

D. Performance Standards. The Shoreline Administrator or his designee shall only require a critical areas report for a development proposal in a CARA if the Shoreline Administrator or his designee determines that the report will provide information that is necessary to protect the CARA from adverse impacts created by the development proposal. In addition, the following performance standards will apply:

- 1. Containment. Every development proposal involving hazardous substance processing or handling which is located in or adjacent to a CARA shall provide containment devices adequate in size to contain on-site any unauthorized release of hazardous substances from any area where these substances are either stored, handled, treated, used, or produced. Containment devices shall

prevent such substances from penetrating into the ground. This provision also applies to releases that may mix with storm runoff.

2. Hazardous Substances Management Plan. Every development proposal involving hazardous substance processing or handling which is located in or adjacent to a CARA shall prepare a plan containing procedures to be followed to prevent, control, collect, and dispose of any unauthorized release of a hazardous substance.

3. Storage Tanks.

a. All storage tanks proposed to be located in a CARA must comply with local building code requirements and must conform to the current International Fire Code requirements for secondary containment.

b. Underground Tanks. All new underground tanks located in or adjacent to a CARA shall be designed and constructed so as to:

i. Prevent releases due to corrosion or structural failure for the operational life of the tank;

ii. 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; and

iii. Use material in the construction or lining of the tank, which is compatible with the substance to be stored.

c. Adequate protection against corrosion shall be verified by a qualified professional following construction and shall be re-verified by a qualified professional every three years that the tanks are in use.

d. Aboveground Tanks. No new aboveground storage tank located in or adjacent to a CARA shall be installed, used or maintained in any manner which may allow the release of a hazardous substance to the ground, groundwaters, or surface water.

4. Agriculture. Agricultural activities in or adjacent to a CARA shall use best management practices to prevent ground quality degradation from livestock waste.

5. Sewage Disposal. All residential, commercial or industrial development proposals located in or adjacent to a CARA shall comply with Title 13 CMC Public Utilities.

6. Golf Courses. Golf course operations proposed in or adjacent to a CARA shall be subject to a golf course maintenance plan using best management practices to protect groundwater quality. The plan shall detail the proposed use of fertilizers, herbicides, pesticides, fungicides, or other maintenance agents, with projected application methods and schedules and measures to prevent pollution of groundwater.

7. Commercial Vehicle Repair and Servicing. Commercial vehicle repair and servicing must be conducted over impermeable pads and within a covered structure capable of withstanding normally expected weather conditions. Chemicals used in the process of vehicle repair and servicing must be stored in a manner that protects them from weather and provides containment should leaks occur. No dry wells shall be allowed in CARAs on sites used for vehicle repair and servicing. Dry wells existing on the site prior to facility development must be abandoned using techniques approved by the Washington State Department of Ecology prior to commencement of the proposed activity.

8. The city shall impose conditions on the uses listed in the table below in accordance with the applicable state and federal regulations as necessary to protect CARAs.

Statutes, Regulations, and Guidance Pertaining to Groundwater Impacting Activities:

Activity	Statute--Regulation--Guidance
Aboveground storage tanks	Chapter 173-303-640 WAC
Animal feedlots	Chapter 173-216 WAC, Chapter 173-220 WAC
Automobile washers	Chapter 173-216 WAC, Best Management Practices for Vehicle and Equipment Discharges (WDOE WQ-R-95-56)
Chemical treatment storage and disposal facilities	Chapter 173-303-182 WAC
Hazardous waste generator (boat repair shops, biological research facility, dry cleaners, furniture stripping, motor vehicle service garages, photographic processing, printing and publishing shops, etc.)	Chapter 173-303 WAC
Injection wells	Federal 40 CFR Parts 144 and 146, Chapter 173-218 WAC
Junk yards and salvage yards	Chapter 173-304 WAC, Best Management Practices to Prevent Stormwater Pollution at Vehicles Recycler Facilities (WDOE 94-146)
Oil and gas drilling	Chapter 332-12-450 WAC, WAC, Chapter 173-218 WAC
On-site sewage systems (large scale)	Chapter 173-240 WAC
On-site sewage systems (< 14,500 gal/day)	Chapter 246-272 WAC, Local Health Ordinances
Pesticide storage and use	Chapter 15.54 RCW, Chapter 17.21 RCW
Sawmills	Chapter 173-303 WAC, 173-304 WAC, Best Management Practices to Prevent Stormwater Pollution at Log Yards (WDOE 95-53)
Solid waste handling and recycling facilities	Chapter 173-304 WAC
Surface mining	Chapter 332-18-015 WAC
Underground storage tanks	Chapter 173-360 WAC
Wastewater application to land surface	Chapter 173-216 WAC, Chapter 173-200 WAC, WDOE Land Application Guidelines, Best Management Practices for Irrigated Agriculture

1.500 Fish and wildlife habitat conservation areas.

A. Purpose. The purpose of fish and wildlife habitat conservation is to preserve and protect those areas with which anadromous fish, threatened and endangered species, and species of local importance have a primary association.

B. Designation.

1. For purposes of SMP Appendix A, fish and wildlife habitat conservation areas are those habitat areas that meet any of the following criteria:
 - a. Documented presence of species listed by the federal government or the state of Washington as endangered, threatened, and sensitive species; or
 - b. Sites containing bald eagle habitat as mapped by WDFW; or
 - c. Sites containing heron rookeries or active nesting trees; or
 - d. All waterways which meet the criteria for streams set forth in WAC 222-16-030 and based on the interim water typing system in WAC 222-16-031.
2. All areas within the city meeting one or more of the above criteria, regardless of any formal identification, are designated critical areas and are subject to the provisions of SMP Appendix A. The approximate location and extent of known fish and wildlife habitat conservation areas are shown on the critical area maps adopted by the city, as most recently updated.
3. Any fish and wildlife conservation areas or other critical areas created or recorded as compensation for approved wetland alterations shall be designated as the same type, class, or category as the critical area it replaces and shall be subject to all provisions of SMP Appendix A.

C. Buffers.

1. Waterways. Waterways are classified according to WAC 222-16-031. Definitions are provided in Section 1. 800. The following buffer widths are the minimum requirements for waterways. All buffers shall be measured from the ordinary high water mark (OHWM).
 - a. A one hundred fifteen foot buffer on the Snoqualmie River, a Shoreline of Statewide Significance and Class 1 watercourse.
 - b. The buffer for the Tolt River, a Shoreline of the State and a Class 1 watercourse, shall extend one hundred feet from the edges of its channel migration zone. The floodway for the Tolt River as mapped by FEMA on map 53033C0418G and 53033C0419G, December 6, 2001 shall be used as a surrogate for the channel migration zone. If the floodway is mapped differently in the future by FEMA, the map with the largest area mapped as floodway shall be used as a surrogate for the channel migration zone.
 - c. A one hundred fifteen foot buffer on each side of the channel of Class 2 and 3 watercourses.
 - d. A sixty-five foot buffer on each side of the channel of a Class 4 watercourse.
 - e. A twenty-five foot buffer on each side of the channel of a Class 5 watercourse.
2. Wildlife and Other Habitat. Buffer widths and setbacks for the protection of listed species outside of streams and stream buffers will be determined by the city on a site-specific basis through the approval of a critical areas report. The Shoreline Administrator or his designee shall consider the recommendation for adequate buffers for wildlife and other habitat as identified in the current management recommendations for Washington Priority Species (WDFW).

D. General Performance Standards. The requirements provided in this section supplement those identified in Section 1.200 General provisions. Fish and wildlife habitat conservation areas may be altered only if the proposed alteration of the habitat or the mitigation proposed does not degrade the qualitative functions and values of the habitat. All new structures and land alterations shall be prohibited from habitat conservation areas, except in accordance with Section 1.121 of SMP Appendix A. Additional performance standards follow:

1. No development shall be allowed within a habitat conservation area or any associated buffer with which state or federal endangered, threatened, or sensitive species have a primary association.
2. Whenever development is proposed adjacent to a fish and wildlife habitat conservation area with which state or federal endangered, threatened, or sensitive species have a primary association, such areas shall be protected by the measures recommended in a critical areas report prepared by a qualified professional and approved by the Shoreline Administrator or his designee.
3. Approval of alteration of the fish and wildlife habitat conservation area, buffer or any associated setback requirements shall not occur prior to approval by the city upon the completion of consultation with the State Department of Fish and Wildlife and the appropriate federal agency, if applicable.
4. No plant, wildlife, or fish species that is not indigenous to the region shall be introduced into a fish and wildlife habitat conservation area unless authorized by the Shoreline Administrator or his designee after reviewing related state or federal permit or approval.
5. Alteration of natural watercourses shall be avoided, if feasible. If alteration is unavoidable, the following provisions shall apply:
 - a. Watercourse alteration projects shall not result in blockage of side channels. Known fish barriers into side channels shall be removed as part of an approved watercourse alteration project.
 - b. Removal of large woody debris (LWD) and vegetation, including salvage logging, shall be avoided or minimized unless it is demonstrated that the LWD poses an imminent safety hazard to the public, property or structures, or when it is part of a larger restoration project. Any removal that is unavoidable shall be mitigated by replanting with native vegetation and by augmenting lost LWD where LWD can be anchored in such a way to provide fisheries, riparian or shoreline erosion benefits; and to avoid safety hazards where recreational boating and swimming are expected.
 - c. The applicant shall maintain the altered or relocated portion of the watercourse to ensure that the flood carrying capacity is not diminished. Maintenance shall be bonded for a period of five years and be in accordance with an approved maintenance program.
6. The Shoreline Administrator or his designee shall place conditions on the requested permit to restrict activities allowed within a fish and wildlife habitat conservation area or its buffer, as necessary, per the approved critical area report and habitat management plan to minimize or mitigate any potential adverse impacts. Conditions may include:
 - a. Establishment of buffer zones outside of the required watercourse, channel migration zone and wetland buffers, on a case-by-case basis, as may be necessary to retain adequate natural habitat for listed species;
 - b. Preservation of critically important vegetation and/or habitat features (e.g., snags);
 - c. Limitation of access to the habitat area, including fencing (on a case-by-case basis) to deter unauthorized access; (Note: Fencing shall not create a barrier to habitat function.)
 - d. Seasonal restrictions of construction activities;
 - e. Establishment of a duration and timetable for periodic review of mitigation activities; and
 - f. Requirement of a performance bond, when necessary, to ensure successful completion.

E. Special Provisions--Watercourses.

1. The requirements provided in this section supplement those identified in Section 1.200 General provisions. Activities may only be permitted in a watercourse or watercourse buffer if the applicant can show that the proposed activity will not degrade the functions and values of the watercourse, watercourse buffer, or other critical area.

2. Class 1, 2, and 3 watercourses as defined in Section 1.800. Activities and uses shall be prohibited in Class 1 and 2 watercourses except as provided for in Sections 1.122 and the allowable activities and uses listed below.

a. Watercourse Crossings. Watercourse crossings shall be minimized, but when necessary they shall conform to the following standards as well as other applicable laws (see the State Department of Fish and Wildlife, or Ecology).

i. The watercourse crossing is the only reasonable alternative that has the least impact;

ii. It has been shown in the critical areas report that the proposed crossing will not decrease the watercourse and associated buffer functions and values;

iii. The watercourse crossing shall use bridges instead of culverts unless it can be demonstrated that a culvert would result in equal or less ecological impacts. Under no circumstances may a culvert be installed in the Snoqualmie or Tolt Rivers;

iv. All watercourse crossings using culverts shall use super span or oversized culverts with appropriate fish enhancement measures. Culverts shall not obstruct fish passage;

v. Watercourse crossings shall be designed according to the current Washington Department of Fish and Wildlife Design of Road Culverts for Fish Passage, 2003 (and as amended), and the National Marine Fisheries Service Guidelines for Salmonid Passage at Stream Crossings, 2001 (and as revised);

vi. All watercourse crossings shall be constructed during the summer low flow period between June 15th and September 15th or as specified by the State Department of Fish and Wildlife in the hydraulic project approval or as may be additionally specified by the National Marine Fisheries Service or U.S. Fish and Wildlife Service;

vii. Watercourse crossings shall not occur through salmonid spawning areas unless no other feasible crossing site exists;

viii. Bridge piers or abutments shall not be placed in either the floodway or between the ordinary high water marks unless no other feasible alternative placement exists;

ix. Watercourse crossings shall not diminish the flood carrying capacity of the stream;

x. Watercourse crossings shall minimize interruption of downstream movement of wood and gravel;

xi. Watercourse crossings shall provide for maintenance of culverts and bridges; and

xii. Watercourse crossings shall be minimized by serving multiple properties whenever possible.

b. Trails. The criteria for alignment, construction, and maintenance of trails within wetlands and their buffers shall apply to trails within watercourse buffers.

c. Utilities. The criteria for alignment, construction, and maintenance within the wetland buffers shall apply to utility corridors within watercourse buffers. In addition, corridors shall not be aligned parallel with any watercourse channel unless the corridor is outside the buffer, and crossings shall be minimized. Installation shall be accomplished by boring beneath the scour depth and hyporheic zone of the water body where feasible. Where possible, crossings shall be contained within the existing footprint of an existing road or utility crossing. Otherwise,

crossings shall be at an angle greater than sixty degrees to the centerline of the channel. Criteria for watercourse crossing shall also apply.

d. Stormwater Facilities. Stormwater facilities may be permitted provided that they are located in the outer twenty-five percent of the buffer and are located in the buffer only when no practicable alternative exists outside the buffer. Stormwater facilities should be planted with native plantings where feasible to provide habitat, and/or less intrusive facilities should be used. Detention/retention ponds should not be located in the buffer.

e. Floodway Dependent Structures. Floodway dependent structures or installations may be permitted within streams if allowed or approved by this SMP and other ordinances or other agencies with jurisdiction.

f. Stream Bank Stabilization. This section applies only to Class 2 and 3 watercourses. Regulations governing shoreline stabilization for Class 1 watercourses can be found in Section VI.C of the SMP. Stream bank stabilization shall only be allowed when it is shown, through a stream bank stability assessment conducted by a qualified fluvial geomorphologist or hydraulic engineer, that such stabilization is required for public safety reasons, that no other less intrusive actions are possible, and that the stabilization will not degrade in-stream or downstream channel stability. Stream bank stabilization shall utilize bioengineering or soft armoring techniques unless otherwise demonstrated. Stream bank stabilization shall conform to the Integrated Streambank Protection Guidelines developed by the Washington State Department of Fish and Wildlife, 2002 or as revised. Stabilization measures must demonstrate the following:

- i. Natural shoreline processes will be maintained. The project will not result in increased erosion or alterations to, or loss of, shoreline substrate within one-fourth mile of the project area;
- ii. The stabilization measures will not degrade fish or wildlife habitat conservation areas or associated wetlands;
- iii. Adequate mitigation measures ensure that there is no net loss of the functions or values of riparian habitat.

g. Stream Bank Stabilization Maintenance. This section applies only to Class 2 and 3 watercourses. Regulations governing shoreline stabilization for Class 1 watercourses can be found in Section VI.C of the SMP. Maintenance of lawfully established existing bank stabilization is allowed provided it does not increase the height or linear amount of bank and does not expand waterward or into aquatic habitat landward.

3. Class 3, 4 and 5 Watercourses. Activities and uses that result in unavoidable and necessary impacts may be permitted in Class 3, 4, and 5 watercourses and buffers in accordance with an approved critical areas report and mitigation plan, and only if the proposed activity is the only reasonable alternative that will accomplish the applicant's objectives.

F. Special Provisions--Anadromous Fish.

1. Activities, uses, and alterations proposed to be located in waterbodies used by anadromous fish or in areas that affect such waterbodies shall give special consideration to the preservation and enhancement of anadromous fish habitat, including, but not limited to, the following:

- a. Activities shall be timed to occur only during the allowable work window as designated by the State Department of Fish and Wildlife or as may be additionally specified by the National Marine Fisheries Service or U.S. Fish and Wildlife Service;
- b. An alternative alignment or location for the activity is not feasible;
- c. The activity is designed so that it will minimize the degradation of the functions or values of the fish habitat or other critical areas; and

- d. Any impact to the functions and values of the habitat conservation area are mitigated in accordance with an approved critical areas report.
2. Structures that prevent the migration of salmonids shall not be allowed in the portion of waterbodies currently or historically used by anadromous fish. Fish bypass facilities shall be provided that allow the upstream migration of adult fish and shall prevent juveniles migrating downstream from being trapped or harmed.
3. Fills waterward of the OHWM, when authorized, shall minimize the adverse impacts to anadromous fish and their habitat, shall mitigate any unavoidable impacts, and shall only be allowed for water-dependent uses or ecological restoration.
4. Outfalls located within or upstream of spawning areas shall be designed, constructed, and operated to minimize the disturbance of spawning beds.
5. Fueling facilities within one hundred feet of the buffer must follow all applicable state regulations that achieve fuel containment.
6. Water withdrawal and diversion uses and activities shall preserve water flows sufficient to maintain salmon and steelhead habitat. Review of proposed water withdrawal and diversion uses and activities shall account for the cumulative effect of all current and likely future water withdrawal and diversion from the waterbody.
7. To the extent allowed by law, any mitigation of development impacts within the Tolt and Snoqualmie River buffers shall ensure that native species are retained. The buffer shall be comprised of plant species native to the region. If the buffer does not contain sufficient native species as determined by the critical areas report, mitigation (to the extent allowed by law) shall require that trees be planted from among the following species: black cottonwood (*Populus trichocarpa*), Douglas fir (*Pseudotsuga menziesii*), western red cedar (*Thuja plicata*), Sitka spruce (*Picea sitchensis*), bigleaf maple (*Acer macrophyllum*), and red alder (*Alnus rubra*), or other species native to the Puget Sound lowlands and common in the lower Snoqualmie and Tolt River basins. Monitoring and maintenance will be used to ensure that the buffer achieves mature forest conditions and contributes wood to maintain channel processes.

G. Special Provisions--Wildlife. Bald eagle habitat shall be protected pursuant to the Washington State Bald Eagle Protection Rules (WAC 232-12-292).

H. Critical Areas Report.

1. A critical areas report for fish and wildlife habitat conservation areas shall be prepared by a qualified biologist with experience analyzing aquatic and/or wildlife habitat and who has experience preparing reports for the relevant type of critical area.
2. In addition to the requirements of Section 1.200 General provisions, critical area reports for wildlife habitat areas shall include the following additional information:
 - a. Any species of local importance; priority species; or endangered, threatened, sensitive, or candidate species that has a primary association with habitat on or adjacent to the project area;
 - b. The qualities that are essential to maintain feeding, breeding, and nesting of listed species using the fish and wildlife habitat conservation area; and
 - c. Measures to minimize the impact on these ecological processes from proposed activities. The applicant shall be guided by the document Management Recommendations for Washington's Priority Habitats and Species, issued by the Washington Department of Wildlife, May 1991, (or as revised), and by any recovery and management plans prepared by the Washington Department

of Fish and Wildlife for the listed species pursuant to WAC 232-12-297(11). Measures to minimize impacts shall consider the following:

- i. Seasonal restrictions on construction activities,
- ii. Use of low-impact development techniques or clustering of development on the subject property to locate structures in a manner that preserves and minimizes the adverse effects to habitat areas,
- iii. Preservation and retention of habitat and vegetation on the subject property; contiguous blocks or with connection to other habitats that have a primary association with a listed species,
- iv. Establishment of expanded buffers around the critical area,
- v. Limitation of access to the critical area and buffer, and
- vi. The creation of restoration of habitat area for listed species.

3. A critical areas report for watercourses shall include the following information:

- a. On the site map:
 - i. The location of the ordinary high water mark;
 - ii. The toe of any slope twenty-five percent or greater within twenty-five feet of the ordinary high water mark; and
 - iii. The location of any proposed or existing watercourse crossing.
- b. In the report:
 - i. Characterization of riparian (streamside) vegetation species, composition, and habitat function;
 - ii. Description of the soil types adjacent to and underlying the watercourse, using the soil conservation service soil classification system;
 - iii. Determination of the presence or absence of fish, and reference sources; and
 - iv. When watercourse alteration is proposed, the report shall include watercourse width and flow; stability of the channel including erosion potential; type of substratum; discussions of infiltration capacity and bio-filtration as compared to the watercourse prior to alteration; presence of hydrologically linked wetlands; analysis of fish and wildlife habitat; and proposed floodplain limits.

I. Watercourse Mitigation. No net loss of watercourse functions and values shall occur as a result of the overall project. The mitigation requirements for watercourse alterations, in addition to the requirements in Section 1.200 General provisions, shall meet the following minimum performance standards and shall occur pursuant to an approved mitigation plan:

1. Achieve equivalent or greater functions, including, but not limited to, habitat functions and hydrologic functions.
2. Maintain or improve watercourse channel dimensions, including depth, length, and gradient.
3. Restore watercourse buffers disturbed by the project with native vegetation.
4. Create an equivalent or improved channel bed.
5. Replace watercourse and watercourse buffer habitat features and areas disturbed by the project.
6. Unless it is demonstrated that a higher level of watercourse function would result from an alternate mitigation approach, compensatory mitigation should be either in-kind and on-site, or in-kind and within the same subbasin. Mitigation actions should be conducted on-site except when:
 - a. There are no reasonable on-site or in-sub-drainage basin opportunities with a high likelihood of success;

- b. Off-site mitigation has a greater likelihood of providing equal or improved habitat functions for fish and wildlife;
 - c. Established watershed goals for water quality, flood or conveyance, habitat, or other functions, including priorities and recommendations outlined in the WRIA 7 Salmon conservation plan, justify location of mitigation at another site.
 - i. Prior to approval of off-site mitigation, the off-site mitigation area shall be recorded as stipulated in Section 1.116.
7. The requirements in this section may be modified at the Shoreline Administrator or his designee's direction if the applicant demonstrates that, with respect to each watercourse area function, greater functions can be obtained in the affected drainage subbasin through alternative mitigation.

J. Mitigation Plans for Alteration to Watercourses and Watercourse Buffers. The scope and content of a mitigation plan to alter watercourse and watercourse buffers shall be decided on a case-by-case basis. As the impacts to the critical area increase, the mitigation measures to offset these impacts will increase in number and complexity. Refer to provisions in Section 1.200 General provisions.

1.600 Geologically hazardous areas.

A. Purpose. The purpose of this section is to reduce the risk to public health and safety by preventing incompatible development activity in or near geologically hazardous areas.

B. Designation. Geologically hazardous areas include areas susceptible to erosion, sliding, earthquake, or other geological events. These areas pose a threat to the health and safety of citizens when incompatible development is sited in significant hazardous areas. Such incompatible development may not only place itself at risk, but may also increase the hazard to surrounding development and uses. Areas susceptible to one or more of the following types of hazards shall be designated as geologically hazardous areas:

1. Erosion hazard;
2. Class II and Class III landslide hazards (including steep slopes). Landslide hazards are classified as Classes I through III based on the degree of risk as follows:
 - a. Class I/low hazard areas with slopes of less than fifteen percent.
 - b. Class II/moderate hazard areas with slopes of between fifteen percent and thirty percent that are underlain by soils that consist largely of sand, gravel, or glacial till.
 - c. Class III/high hazard areas with slopes of greater than fifteen percent that are underlain by soils consisting largely of silt and clay, or any slope over thirty percent;
3. Seismic hazard;
4. Other geological events including mass wasting, debris flows, rock falls, and differential settlement.

C. Prohibited Development and Activities.

1. Pipelines containing hazardous substances (e.g., petroleum) are prohibited in geologically hazardous areas.
2. New development or the creation of new lots that would cause foreseeable risk from geological conditions to people or improvements during the life of the development is prohibited.

3. New development that would require structural shoreline stabilization over the life of the development is prohibited except when the applicant can demonstrate that stabilization is necessary to protect allowed uses where no alternative locations are available and no net loss of ecological functions will result.

D. Performance Standards.

1. All projects shall be evaluated to determine whether the project is proposed to be located in a geologically hazardous area, the project's potential impact on the geologically hazardous area, and the potential impact on the proposed project. The Shoreline Administrator or his designee may require the preparation of a critical area report to determine the project's ability to meet the performance standards.

2. Alterations of geologically hazardous areas or associated buffers may only occur for activities that:

a. Will not increase the threat of the geological hazard to adjacent properties beyond pre-development conditions;

b. Will not adversely impact other critical areas;

c. Are designed so that the hazard to the project is eliminated or mitigated to a level equal to or less than pre-development conditions;

d. Are certified as safe as designed and under anticipated conditions by a qualified geotechnical engineer or geologist, licensed in the state of Washington.

3. All development applications shall submit an erosion control plan consistent with this section prior to receiving approval.

4. Clearing limits for roads, water, wastewater, and stormwater utilities, and temporary erosion control facilities shall be marked in the field and approved by the city prior to any alteration of existing native vegetation.

5. Approved clearing shall only be allowed from May 1st to October 1st of each year considering that the city may extend or shorten the dry season on a case-by-case basis depending on the actual weather conditions; except that timber harvest, not including brush clearing or stump removal, may be allowed pursuant to an approved forest practices permit issued by the State Department of Natural Resources.

6. Access roads and utilities may be permitted in the erosion or landslide hazard area and associated buffers if the city determines that no other feasible alternative exists.

7. Utility lines and pipes shall be permitted in the erosion and landslide hazard areas only when the applicant demonstrates that no other practical alternative is available. The line or pipe shall be located aboveground and be properly anchored and/or designed so that it will continue to function in the event of an underlying slide. Stormwater conveyance shall be allowed only through a high-density polyethylene pipe with fuse-welded joints, or similar product that is technically equal or superior.

8. Point discharges from surface water facilities and roof drains onto or upstream from an erosion or landslide hazard area shall be prohibited except that conveyance is allowed via continuous storm pipe down slope to a point where there are no erosion hazard areas downstream from the discharge.

9. The division of land in erosion or landslide hazard areas and associated buffers is subject to provisions established for all critical areas in Section 1.200 General provisions.

E. Special Provisions--Erosion and Landslide Areas. Activities on sites containing erosion or landslide hazards shall meet the following requirements:

1. Buffers Required. A buffer shall be established for all edges of erosion or landslide hazard areas. The size of the buffer shall be determined by the Shoreline Administrator or his/her designee in order to eliminate or minimize the risk of property damage, death, or injury resulting from erosion and landslides caused in whole or part by the development, based upon review of and concurrence with a critical areas report prepared by a qualified professional.
2. Minimum Buffers. The minimum buffer shall be equal to the height of the slope, or fifty feet, whichever is greater.
3. Buffer Reduction. The buffer may be reduced to a minimum of ten feet when a qualified professional demonstrates to the satisfaction of the Shoreline Administrator or his designee that the reduction will adequately protect the proposed development, adjacent developments and uses, and the subject critical area. A Shoreline Variance is required for any reduction of the buffer to less than 50 feet.
4. Increased Buffer. The buffer may be increased when the Shoreline Administrator or his designee determines a larger buffer is necessary to prevent risk of damage to proposed and existing development.
5. Alterations. Alterations of an erosion or landslide hazard area and/or buffer may only occur for activities for which a geotechnical analysis is submitted and certifies that:
 - a. The development will not increase surface water discharge or sedimentation to adjacent properties beyond the pre-development condition;
 - b. The development will not decrease slope stability on adjacent properties; and
 - c. Such alteration will not adversely impact other critical areas.

F. Design Standards--Erosion and Landslide Hazard Areas. Design standards for a development proposal within an erosion area or a Class II or Class III landslide hazard area and/or buffer shall meet the following basic requirements unless it can be demonstrated that an alternative design that deviates from one or more of these standards provides greater long-term slope stability while meeting all other provisions of this section. The requirements for long-term slope stability shall exclude designs that require regular and periodic maintenance to maintain their level of function. The basic development design standards are:

1. Structures and improvements shall be clustered to avoid geologically hazardous areas and other critical areas;
2. Structures and improvements shall minimize alterations to the natural contours of the slope and foundations shall be tiered where possible to conform to existing topography;
3. Structures and improvements shall be located to preserve the most critical portion of the site and its natural landforms and vegetation;
4. The proposed development shall not result in greater risk or a need for increased buffers on neighboring properties; and
5. The use of a retaining wall that allows the maintenance of existing natural slopes are preferred over graded artificial slopes.

G. Impervious Surface Ratio.

1. An impervious surface ratio is a measurement of the amount of the site that is covered by any material that substantially reduces or prevents the infiltration of stormwater into previously

undeveloped land. The maximum impervious surface ratios for Class II and Class III landslide hazard areas are set forth as follows:

- a. Class II landslide hazard areas may have a maximum impervious surface ratio of 0.30.
- b. Class III landslide hazard areas may have a maximum impervious surface ratio of 0.20.

H. Native Vegetation.

1. The minimum percentage of native vegetation that must be retained on sites including Class II or Class III landslide hazard areas is set forth as follows:

- a. Class II landslide hazard areas require a minimum of sixty-five percent retained native vegetation.
- b. Class III landslide hazard areas require a minimum of sixty-five percent retained native vegetation.

I. Seismic Hazard Areas.

1. Development proposals on sites containing mapped seismic hazard areas may make alterations to a seismic hazard area only when the applicant demonstrates and the city concludes that:

- a. Evaluation of site specific subsurface conditions show that the site is not located in a seismic hazard area; or
- b. The applicant implements appropriate engineering design based on the best available engineering and geological practices that either eliminates or minimizes the risk of structural damage or injury resulting from seismically induced or soil liquefaction related ground deformations.

2. The city may in its sole discretion waive or reduce engineering study and design requirements for alterations in seismic hazard areas for any development permits except those for:

- a. Essential facilities as defined by the International Building Code (IBC) as adopted by the city, or a facility the destruction of which would constitute a hazard to life or property due to the potential for release or discharge of hazardous materials or other applicable relevant considerations pursuant to Chapter 16 of the IBC. The foregoing includes, but is not limited to, wastewater treatment plants, public potable water supply facilities, city hall, and fire stations;
 - b. Nonresidential structures with an occupancy load of fifty persons or greater, or facilities that are publicly funded or owned, specifically including without limitation school buildings,
 - c. Any development that includes new construction, additions or alterations that will increase occupancy or significantly affect the risk of structural damage or injury located on a site with areas identified as containing erosion and/or landslide hazards in addition to seismic hazard.
3. Nothing herein shall be deemed as waiving, altering, or otherwise abridging any applicable requirement of the state building code, as adopted by the city.

J. Critical Areas Report.

1. When a critical areas report is required for a geologically hazardous area, it shall be prepared by an engineer or geologist licensed in the state of Washington with experience analyzing geologic, hydrogeologic, and groundwater flow systems, and who has experience preparing reports for the relevant type of hazard.

2. In addition to the requirements of Section 1.200 General provisions, critical area reports required for geologically hazardous areas shall include the following additional information:

- a. On the site map:
 - i. All geologically hazardous areas within or adjacent to the project area or that have potential to be affected by the proposal; and
 - ii. The top and toe of slope (Note: These should be located and flagged in the field subject to city staff review).
- b. In the report:
 - i. A geological description of the site;
 - ii. A discussion of any evidence of existing or historic instability, significant erosion or seepage on the slope;
 - iii. A discussion of the depth of weathered or loosened soil on the site and the nature of the weathered and underlying basement soils;
 - iv. An estimate of load capacity, including surface and ground water conditions, public and private sewage disposal system, fill and excavations, and all structural development;
 - v. Recommendations for building limitations, structural foundations, and an estimate of foundation settlement;
 - vi. A complete discussion of the potential impacts of seismic activity on the site;
 - vii. Recommendations for management of stormwater for any development above the top of slope;
 - viii. A description of the nature and extent of any colluviums or slope debris near the toe of slope in the vicinity of any proposed development; and
 - ix. Recommendations for appropriate building setbacks, grading restrictions, and vegetation management and erosion control for any proposed development in the vicinity of the geologically hazardous areas.

1.700 Frequently flooded areas.

A. Findings--Purpose--Flood loss reduction.

1. Findings. The flood hazard areas of the city are subject to periodic inundation which results in loss of life and property, health, and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare. These flood losses are caused by the cumulative effect of obstructions in areas of special flood hazards which increase flood heights and velocities, and when inadequately anchored, damage uses in other areas. Uses that are inadequately floodproofed, elevated, or otherwise protected from flood damage also contribute to the flood loss.
2. Purpose. It is the purpose of these regulations to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas within shoreline jurisdiction by provisions designed:
 - a. To protect human life and health;
 - b. To minimize expenditure of public money and costly flood control projects;
 - c. To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
 - d. To minimize prolonged business interruptions;
 - e. To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, and bridges located in areas of special flood hazard;

- f. To help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas;
 - g. To ensure that potential buyers are notified that property is in an area of special flood hazard; and
 - h. To ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.
3. Flood loss reduction. In order to accomplish its purposes, this ordinance includes methods and provisions for:
- a. Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;
 - b. Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
 - c. Controlling the alteration of natural flood plains, stream channels, and natural protective barriers, which help accommodate or channel flood waters;
 - d. Controlling filling, grading, dredging, and other development which may increase flood damage; and
 - e. Preventing or regulating the construction of flood barriers which will unnaturally divert floodwaters or may increase flood hazards in other areas.

B. General provisions.

1. Basis for Establishing the Areas of Special Flood Hazard. The areas of special flood hazard identified by the Federal Insurance Administration in a scientific and engineering report entitled "The Flood Insurance Study for King County and Incorporated Areas" dated December 6, 2001, and letter of map revision (LOMR) dated May 1, 2002, and any revisions thereto, with an accompanying flood insurance rate map (FIRM), and any revisions thereto, are adopted by reference and declared to be a part of SMP Appendix A. The flood insurance study and the FIRM are on file at the city and available for public inspection and copying. The best available information for flood hazard area identification as outlined in Section 1.700(C)(4)(d) shall be the basis for regulation until a new FIRM is issued which incorporates the data utilized under Section 1.700(C)(4)(d).
2. Warning and disclaimer of liability. The degree of flood protection required by SMP Appendix A 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 man-made or natural causes. SMP Appendix A does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. SMP Appendix A shall not create liability on the part of the city, any officer or employee thereof, or the Federal Insurance Administration, for any flood damages that result from reliance on these regulations or any administrative decision lawfully made hereunder.

C. Administration.

1. Development Permit Required. A development permit shall be obtained before construction or development begins within any area of special flood hazard established in Section 1.700(B)(1). The permit shall be for all structures including manufactured homes, as set forth in CMC 15.08.010 and for all development including fill and other activities, also defined in CMC 15.08.010.

2. Application for Development Permit. Application for a development permit shall be made on forms furnished by the city and may include, but not be limited to, plans in duplicate drawn to scale showing the nature, location, dimensions, and elevations of the area in question; existing or proposed structures, fill, storage of materials, drainage facilities, and the location of the foregoing. Specifically, the following information is required:
 - a. Elevation in relation to mean sea level, of the lowest floor (including basement) of all structures;
 - b. Elevation in relation to mean sea level to which any structure has been floodproofed;
 - c. Certification by a registered professional engineer or architect that the floodproofing methods for any nonresidential structure meet the floodproofing criteria in Section 1.700(F)(2); and
 - d. Description of the extent to which a watercourse will be altered or relocated as a result of proposed development.
3. Designation of local administrator. The Shoreline Administrator or his/her designee is hereby appointed to administer and implement SMP Appendix A by granting or denying development permit applications in accordance with its provisions.
4. Duties and responsibilities of local administrator. The duties of the Shoreline Administrator under SMP Appendix A shall include, but not be limited to:
 - a. Review all development permits to determine that the permit requirements of SMP Appendix A have been satisfied;
 - b. Review all development permits to determine that all necessary permits have been obtained from those federal, state, or local governmental agencies from which prior approval is required;
 - c. Review all development permits to determine if the proposed development is located in the floodway. If located in the floodway, assure that the encroachment provisions of Section 1.700(G) are met;
 - d. When base flood elevation data has not been provided (A or V zone) in accordance with Section 1.700(B)(2), the Shoreline Administrator shall obtain, review and reasonably utilize any base flood elevation and floodway data available from a federal, state or other source, in order to administer Sections 1.700(F) and 1.700(G);
 - e. Where base flood elevation data is provided through the Flood Insurance Study, FIRM, or required as in Section 1.700(C)(4)(d), obtain and record the actual elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved structures, and whether or not the structure contains a basement;
 - f. For all new or substantially improved flood-proofed nonresidential structures where base flood elevation data is provided through the flood insurance study, FIRM, or as required in subsection (4)(d) of this section:
 1. Obtain and record the elevation (in relation to mean sea level) to which the structure was floodproofed; and
 2. Maintain the floodproofing certifications required in Section 1.700(C)(2);
 - g. Maintain for public inspection all records pertaining to the provisions of SMP Appendix A;
 - h. Notify adjacent communities and the department of ecology prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Insurance Administration;
 - i. Require that maintenance is provided within the altered or relocated portion of said watercourse so that the flood carrying capacity is not diminished; and

j. Make interpretations where needed, as to exact location of the boundaries of the areas of special flood hazards (for example, where there appears to be a conflict between a mapped boundary and actual field conditions). The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in Section 1.700(D).

D. Appeals and variances.

1. The hearing examiner shall hear and decide appeals and requests for variances from the requirements of SMP Appendix A as outlined in Section VII(B) of this SMP. The hearing examiner shall hear and decide appeals when it is alleged there is an error in any requirement, decision, or determination made by the Shoreline Administrator in the enforcement or administration of these regulations. Those aggrieved by the decision of the Shoreline Administrator, or any taxpayer, may appeal such decision to the hearing examiner, as provided in Section VII of this SMP.

2. In passing upon such applications, the hearing examiner shall consider all technical evaluations, all relevant factors, standards specified in other sections of SMP Appendix A, the Shoreline Variance Review Criteria specified in Section VII(I) of this SMP, and:

- a. The danger that materials may be swept onto other lands to the injury of others;
- b. The danger to life and property due to flooding or erosion damage;
- c. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
- d. The importance of the services provided by the proposed facility to the community;
- e. The necessity to the facility of a waterfront location, where applicable;
- f. The availability of alternative locations for the proposed use which are not subject to flooding or erosion damage;
- g. The compatibility of the proposed use with existing and anticipated development;
- h. The relationship of the proposed use to the comprehensive plan and flood plain management program for that area;
- i. The safety of access to the property in times of flood for ordinary and emergency vehicles;
- j. The expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site; and,
- k. The costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities such as sewer, gas, electrical, and water systems, and streets and bridges.

3. Upon consideration of the factors of Section 1.700(D)(2) and the purposes of SMP Appendix A, the hearing examiner may attach such conditions to the granting of variances as it deems necessary to further the purposes of the Act, this SMP, and SMP Appendix A. The hearing examiner shall maintain the records of all appeal actions and report any variances to the Federal Insurance Administration upon request.

4. Conditions for Variances.

a. 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 lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing items (a-k) in Section 1.700(D)(2) and the Shoreline Variance Review Criteria in Section VII(I) have been fully considered. As the lot size increases, the technical justification required for issuing the variance increases;

- b. Variances may be issued for the reconstruction, rehabilitation, or restoration of structures listed on the National Register of Historic Places or the State Inventory of Historic Places, without regard to the procedures set forth in this section;
- c. Variances shall not be issued within a designated floodway if any increase in flood levels during the base flood discharge would result;
- d. Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief;
- e. Variances shall only be issued upon:
 - 1. A showing of good and sufficient cause;
 - 2. A determination that failure to grant the variance would result in exceptional hardship to the applicant;
 - 3. 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 the 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 Section 1.700(D)(4)(a), and otherwise complies with Section 1.700(E)(1), (3), and (4).
 - 7. Any applicant to whom a variance is granted shall be given written notice that the structure will be permitted to be built with a lowest floor elevation below the base flood elevation and that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation.

E. General standards.

In all areas of special flood hazards, the following standards are required:

- 1. Anchoring.
 - a. All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure; and
 - b. All manufactured homes shall be anchored to prevent flotation, collapse or lateral movement, and shall be installed using methods and practices that minimize flood damage. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors.
- 2. AH Zone Drainage. Adequate drainage paths are required around structures on slopes to guide floodwaters around and away from proposed structures.
- 3. Construction Materials and Methods.
 - a. All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage;
 - b. All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage; and
 - c. Electrical, heating, ventilation, plumbing, and air-conditioning equipment and other service facilities shall be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within the components during conditions of flooding.
- 4. Utilities.

- a. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the systems;
- b. A water well shall be located on high ground that is not in the floodway (WAC 173-160-171);
- c. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters; and
- d. On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

5. Subdivision Proposals.

- a. All subdivision proposals shall be consistent with the need to minimize flood damage;
- b. All subdivision proposals shall have public utilities and facilities, such as sewer, gas, electrical, and water systems located and constructed to minimize or eliminate flood damage;
- c. All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage; and
- d. For subdivision proposals and other proposed developments which contain at least fifty lots or five acres (whichever is less), base flood elevation data shall be included with the proposal. Where base flood elevation data has not been provided or is not available from another authoritative source, it shall be generated by the project proponent.

6. Review of Building Permits. Where elevation data is not available either through the Flood Insurance Study, FIRM, or from another authoritative source, applications for building permits shall be reviewed to assure that proposed construction will be reasonably safe from flooding. The test of reasonableness is a local judgment and includes use of historical data, high water marks, photographs of past flooding, etc., where available. Failure to elevate at least two feet above the highest adjacent grade in these zones may result in higher insurance rates.

F. Specific standards.

In all areas of special flood hazards where base flood elevation data has been provided as set forth in Section 1.700(B)(2) or Section 1.700(C)(4)(d), the following provisions are required:

1. Residential Construction.

- a. New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated one foot or more above the base flood elevation;
- b. Fully enclosed areas below the lowest floor that are subject to flooding are prohibited, or shall 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 registered professional engineer or architect or must meet or exceed the following minimum criteria:

1. 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;
2. The bottom of all openings shall be no higher than one foot above grade; and,
3. Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

2. Nonresidential Construction. New construction and substantial improvement of any commercial, industrial or other nonresidential structure shall either have the lowest floor, including basement, elevated one foot or more above the base flood elevation; or, together with attendant utility and sanitary facilities, shall:

- a. Be floodproofed so that below one foot or more above the base flood level the structure is watertight with walls substantially impermeable to the passage of water;
- b. Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy;
- c. Be certified by a registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting provisions of this subsection based on their development and/or review of the structural design, specifications and plans. Such certifications shall be provided to the Shoreline Administrator as set forth in Section 1.700(C)(4)(f);
- d. Nonresidential structures that are elevated, not floodproofed, must meet the same standards for space below the lowest floor as described in Section 1.700(F)(1)(b); and,
- e. Applicants floodproofing nonresidential buildings shall be notified that flood insurance premiums will be based on rates that are one foot below the floodproofed level (e.g. a building floodproofed to the base flood level will be rated as one foot below).

3. Manufactured Homes.

- a. All manufactured homes to be placed or substantially improved on sites:

- 1. Outside of a manufactured home park or subdivision;
- 2. In a new manufactured home park or subdivision;
- 3. In an expansion to an existing manufactured home park or subdivision; or,
- 4. In an existing manufactured home park or subdivision on which a manufactured home has incurred "substantial damage" as the result of a flood, shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated one foot or more above the base flood elevation and be securely anchored to an adequately designed foundation system to resist flotation, collapse and lateral movement.

- b. Manufactured homes to be placed or substantially improved on sites in an existing manufactured home park or subdivision that are not subject to the above manufactured home provisions be elevated so that either:

- 1. The lowest floor of the manufactured home is elevated one foot or more above the base flood elevation; or,
- 2. The manufactured home chassis is supported by reinforced piers or other foundation elements of at least equivalent strength that are no less than thirty six inches in height above grade and be securely anchored to an adequately designed foundation system to resist flotation, collapse, and lateral movement.

- 4. Recreational vehicles. Recreational vehicles, if otherwise permitted by this title, are required to either:

- a. Be on the site for fewer than one hundred eighty consecutive days;
- b. Be fully licensed and ready for highway use, on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions; or
- c. Meet the requirements of Section 1.700(F)(3) and the elevation and anchoring requirements for manufactured homes.

G. Floodways.

Located within areas of special flood hazard established in Section 1.700(B)(2) are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of floodwaters which carry debris, potential projectiles, and erosion potential, the following provisions apply:

1. Encroachments, including fill, new construction, substantial improvements, and other development are prohibited within the designated floodway unless certification by a registered professional engineer is provided demonstrating through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in flood levels during the occurrence of the base flood discharge.
2. Construction or reconstruction of residential structures is prohibited within designated floodways, except for:
 - a. Repairs, reconstruction, or improvements to a structure which do not increase the ground floor area;
 - b. Repairs, reconstruction or improvements to a structure, the cost of which does not exceed fifty percent of the market value of the structure either: (a) before the repair, or reconstruction is started, or (b) if the structure has been damaged, and is being restored, before the damage occurred;
 - c. Repairs or reconstruction of a substantially damaged residential structure as provided in RCW 86.16.041 as said section presently exists or is hereafter amended; and
 - d. Repairs, reconstruction, or replacement of existing farmhouses in designated floodways as provided in RCW 86.16.041 as said section presently exists or is hereafter amended. 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 any projects for improvements to structures identified as historic places shall not be included in the fifty percent.
3. If Section 1.700(G)(1) is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of Section 1.700(E), 1.700(F), 1.700(G), 1.700(H), and 1.700(I).
4. Excavation in the designated floodway is prohibited, except: (1) as otherwise required by law; (2) as part of a government funded or sponsored wildlife habitat enhancement project.

H. Standards for shallow flooding areas (AO Zones).

Shallow flooding areas appear on FIRMs as AO zones with depth designations. The base flood depths in these zones range from one to three feet above ground where a clearly defined channel does not exist, or where the path of flooding is unpredictable and where velocity flow may be evident. Such flooding is usually characterized as sheet flow. In these areas, the following provisions apply:

1. New construction and substantial improvements of residential structures and manufactured homes within AO zones shall have the lowest floor (including basement) elevated above the highest adjacent grade to the structure, one foot or more above the depth number specified in feet on the community's FIRM (at least two feet above the highest adjacent grade to the structure if no depth number is specified);
2. New construction and substantial improvements of nonresidential structures within AO zones shall either:
 - a. Have the lowest floor (including basement) elevated above the highest adjacent grade of the building site, one foot or more above the depth number specified on the FIRM (at least two feet if no depth number is specified); or
 - b. Together with attendant utility and sanitary facilities, be completely flood proofed to or above that level so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. If this method is used,

compliance shall be certified by a registered professional engineer or architect as in Section 1.700(F)(2)(c).

3. Require adequate drainage paths around structures on slopes to guide floodwaters around and away from proposed structures.

4. Recreational vehicles placed on sites within AO Zones on the community's FIRM either:

a. Be on the site for fewer than one hundred eighty consecutive days;

b. Be fully licensed and ready for highway use, on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions; or,

c. Meet the requirements of Section 1.700(H)(1) and (3) and the anchoring requirements for manufactured homes set forth in Section 1.700(E)(1)(b).

I. Critical facility.

Construction of new critical facilities shall be, to the extent possible, located outside the limits of the Special Flood Hazard Area (SFHA) (one hundred year floodplain). Construction of new critical facilities shall be permissible within the SFHA if no feasible alternative site is available. Critical facilities constructed within the SFHA shall have the lowest floor elevated three feet or to the height of the five hundred year flood, whichever is higher. Access to and from the critical facility should also be protected to the height utilized above. Floodproofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters. Access routes elevated to or above the level of the base flood elevation shall be provided to all critical facilities to the extent possible.

1.800 Definitions.

The following definitions supplement those found in Section VIII.

"Access roads" means a nonpublic vehicular access, established and maintained for, but not limited to, observing, operating, maintaining, repairing and/or replacing man-made improvements or natural resources.

"Active fault" means a fault that is considered likely to undergo renewed movement within a period of concern to humans. Faults are commonly considered to be active if the fault has moved one or more times in the last ten thousand years.

"Adjacent" means immediately adjoining (in contact with the boundary of the influence area) or within a distance less than that needed to separate activities from critical areas to ensure protection of the functions and values of the critical areas. Adjacent shall mean any activity or development located:

1. On site immediately adjoining a critical area; or

2. A distance equal to or less than the required critical area buffer width and building setback.

"Alteration" means any human-induced change in an existing condition of a critical area or its buffer. Alterations include, but are not limited to: grading, filling, dredging, channelizing, clearing (vegetation), applying pesticides, discharging waste, construction, compaction, excavation, modifying for stormwater management, relocating, or other activities that change the existing landform, vegetation, hydrology, wildlife, or habitat value, of critical areas.

"Aquifer recharge area" means an area that, due to the presence of certain soils, geology, and surface water, acts to recharge groundwater by percolation.

"Base flood elevation" means the water surface elevation of the base flood. It shall be referenced to the National Geodetic Vertical Datum of 1929 (NGVD).

"Channel Migration Hazard Area, Moderate" means a portion of the channel migration zone, as shown on King County's channel migration zone maps, that lies between the severe channel migration hazard area and the outer boundaries of the channel migration zone.

"Channel Migration Hazard Area, Severe" means a portion of the channel migration zone, as shown on King County's channel migration zone maps, that includes the present channel. The total width of the severe channel migration hazard area equals one hundred years times the average annual channel migration rate, plus the present channel width.

"Critical aquifer recharge area" means areas designated by WAC 365-190-080(2) that are determined to have critical recharging effect on aquifers used for potable water as defined by WAC 365-190-030(2). Critical aquifer recharge area categories:

1. Category I. Those areas designated by the city on the critical aquifer recharge area map as highly susceptible to groundwater contamination and that are located within a sole source aquifer or wellhead protection area.
2. Category II. Those areas designated by the city on the critical aquifer recharge area map that:
 - a. Have a medium susceptibility to groundwater contamination and are located in a sole source aquifer or wellhead protection area; or
 - b. Are highly susceptible to groundwater contamination and are not located in a sole source aquifer or wellhead protection area.

"Critical facility" means a facility where even a slight chance of flooding, inundation, or impact from a hazard event might be too great. Critical facilities include, but are not limited to, schools, nursing homes, hospitals, police, fire and emergency installations, and installations that produce, use, or store hazardous materials or hazardous waste.

"Developable area" means a site or portion of a site that may be utilized as the location of development, in accordance with the rules of SMP Appendix A.

"Development permit" means any permit issued by the city of Carnation, or other authorized agency, for construction, land use, or the alteration of land.

"Erosion hazard area" means areas likely to become unstable, such as bluffs, steep slopes, and areas with unconsolidated soils. This includes lands or areas underlain by soils identified by the U.S. Department of Agriculture Soil Conservation Service as having "severe" or "very severe" erosion hazards. This includes, but is not limited to, the following groups of soils: Alderwood-Kitsap (AkF) occurring on slopes of fifteen percent or greater.

"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). These areas include:

1. Areas with which state or federally designated endangered, threatened, and sensitive species have a primary association;
2. Habitats of local importance, including, but not limited to, areas designated as priority habitat by the State Department of Fish and Wildlife;
3. Naturally occurring ponds under twenty acres and their submerged aquatic beds that provide fish and wildlife habitat;
4. Waters of the state, including lakes, rivers, ponds, streams, inland waters, underground waters, salt waters and all other surface water and watercourses within the jurisdiction of the state of Washington;

5. Lakes, ponds, streams, and rivers planted with game fish by a governmental or tribal entity; state natural area preserves and natural resources conservation areas; and
6. Land essential for preserving connections between habitat blocks and open spaces.

"Flood hazard area" means a designated zone on the FEMA flood insurance rate map (FIRM); this does not mean that actual flooding has or will occur. These areas consist of the following components:

1. Floodplain. The land area susceptible to being inundated by stream derived waters with a one percent (1%) chance of being equaled or exceeded in any given year. The limit of this area shall be determined by reference to the Flood Insurance Rate Maps prepared by the Federal Emergency Management Agency (FEMA) or other official studies, maps, or reports that are determined to be reliable and accurate as determined by the Department of Ecology.

Synonymous with the term —100-year floodplain.

2. Flood Fringe. That portion of the floodplain outside the floodway which is generally covered by floodwaters during the base flood. It is generally associated with standing water rather than rapidly flowing water.

3. Floodway. The area, as identified in a master program, that has been established in Federal Emergency Management Agency Flood Insurance Rate Maps.

"Flood insurance rate map (FIRM)" means the official map on which the Federal Insurance Administration has delineated many areas of flood hazard, floodways, and the risk premium zones (CFR44 Part 59).

"Flood insurance study" means the official report provided by the Federal Insurance Administration that includes the flood profiles and the FIRM (CFR44 Part 59).

"Flood proofing" means adaptations that ensure a structure is substantially resistant to the passage of water below the flood protection elevation and resists hydrostatic and hydrodynamic loads and effects of buoyancy.

"Flood protection elevation" means an elevation that is one foot above the base flood elevation.

"Floodway dependent structure" means structures that are dependent on a location in the floodway in order to implement their purpose, including, but not limited to, dams, levees and pump stations, stream bank stabilization, boat launches and related recreational structures, bridge piers and abutments, and fisheries enhancement or stream restoration projects.

"Formation" means an assemblage of earth materials grouped together into a unit that is convenient for description or mapping.

"Formation, Confining" means the relatively impermeable formation immediately overlaying a confined aquifer.

"Frequently flooded areas" means a designated AE zone on the FEMA flood insurance rate map (FIRM), this does not mean that actual flooding has or will occur.

"Functions and values" means the beneficial roles served by critical areas, including, but not limited to, water quality protection and enhancement, fish and wildlife habitat, food chain support, flood storage, conveyance and attenuation, groundwater recharge and discharge, erosion control, and recreation. This should be divided into functions and also values.

"Geologically hazardous areas" means areas that may not be suited to development consistent with public health, safety or environmental standards, because of their susceptibility to erosion, sliding, earthquake, or other geological events as designated by WAC 365-190-080(4). Types of geologically hazardous areas include erosion, landslide, seismic, volcanic hazards, and mine.

"Hazard areas" means areas designated as frequently flooded or geologically hazardous areas due to potential for erosion, landslide, seismic activity, mine collapse, or other geologically hazardous conditions, including steep slopes.

"Hazardous liquid pipeline" as defined by RCW 81.88.040, "hazardous liquid" means: (a) petroleum, petroleum products, or anhydrous ammonia as those terms are defined in 49 CFR Part 195; and (b) carbon dioxide. Pipeline, pipeline system, or hazardous liquid pipeline means all parts of a pipeline facility through which a hazardous liquid moves in transportation. Pipeline or pipeline system does not include process or transfer pipelines.

"Heavy equipment" means such construction machinery as backhoes, treaded tractor, dump trucks, and front-end loaders.

"High-intensity land use" means land uses consisting of commercial, urban, industrial, institutional, retail, residential with more than one unit per acre, agricultural (dairies, nurseries, raising and harvesting crops, requiring annual tilling, raising and maintaining animals), high-intensity recreation (golf courses, ball fields), and hobby farms.

"Landslide" means episodic down slope movement of a mass of soil or rock that includes, but is not limited to, rock falls, slumps, mudflows, and earth flows.

"Landslide hazard areas" means areas that are potentially subject to risk of mass movement due to a combination of geologic, topographic, and hydrologic factors. They include any areas susceptible to landslide because of any combination of bedrock, soil, slope (gradient), slope aspect, structure, hydrology, or other factors, and include, at a minimum, the following:

1. Areas of historic failures, such as:
 - a. Those areas delineated by the United States Department of Agriculture Natural Resources Conservation Service as having a significant limitation for building site development; or
 - b. Areas designated as quaternary slumps, earthflows, mudflows, lahars, or landslides on maps published by the United States Geological Survey or Washington Department of Natural Resources.
2. Areas with all three of the following characteristics:
 - a. Slopes steeper than fifteen percent;
 - b. Hillsides intersecting geologic contacts with a relatively permeable sediment overlying a relatively impermeable sediment or bedrock; and
 - c. Springs or groundwater seepage.
3. Areas that have shown movement during the holocene epoch (from ten thousand years ago to the present) or which are underlain or covered by mass wastage debris of this epoch;
4. Slopes that are parallel or subparallel to planes of weakness (such as bedding planes, joint systems, and fault planes) in subsurface materials;
5. Slopes having gradients steeper than eighty percent subject to rockfall during seismic shaking;
6. Areas potentially unstable as a result of rapid stream incision, stream bank erosion, and undercutting by wave action, including stream channel migration zones;
7. Areas that show evidence of, or are at risk from snow avalanches;
8. Areas located in an active alluvial fan, presently or potentially subject to inundation by debris flows or catastrophic flooding; and
9. Any area with a slope of forty percent or steeper and with a vertical relief of ten or more feet except areas composed of bedrock. A slope is delineated by establishing its toe and top and measured by averaging the inclination over at least ten feet of vertical relief.

"Lowest floor" means the lowest enclosed area (including basement) of a structure. An area used solely for parking of vehicles, building access, or storage, in an area other than a basement area, is not considered a building's lowest point, provided that the enclosed area meets all of the structural requirements of the flood hazard development standards.

"Low-intensity land use" means and includes, but is not limited to, forestry and open space (such as passive recreation and natural resources preservation).

"Minor utility project" means the placement of a utility pole, street sign, anchor, vault, or other small component of a utility facility, where the disturbance of an area is less than seventy-five square feet.

"Moderate-intensity land use" means land uses associated with moderate levels of human disturbance or substantial habitat impacts including, but not limited to, low-density residential (no more than one home per five acre), active recreation, and moderate agricultural land uses.

"Off-site watercourse mitigation" means within the same watercourse drainage subbasin as the proposed alteration site and beyond one-half mile upstream or downstream.

"On-site watercourse mitigation" means within the same stream drainage subbasin as the alteration site and within one-half mile upstream or downstream.

"Practical alternative" means an alternative that is available and capable of being carried out after taking into consideration cost, existing technology, and logistics in light of overall project purposes, and having less impact to critical areas.

"Primary association area" means the area used on a regular basis by, in close association with, or is necessary for the proper functioning of the habitat of a critical species. "Regular basis" means the habitat area is known normally or usually to contain the critical species. Regular basis is species population dependent. Species that exist in low numbers may be present infrequently yet rely on certain habitat types.

1. A qualified professional for habitats or wetlands must have a degree in biology or a related environmental science and professional experience related to the subject.
2. A qualified professional for a geological hazard must be a professional engineer or geologist, licensed in the state of Washington.
3. A qualified professional for critical aquifer recharge areas must be a hydrologist, geologist, engineer, or other scientist with experience in preparing hydrological assessments.

"Riparian habitat" means areas adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems that mutually influence each other.

"Seismic hazard areas" means areas that are subject to severe risk of damage as a result of earthquake induced ground shaking, slope failure, settlement or subsidence, surface faulting, or soil liquefaction. Settlement and soil liquefaction conditions occur in areas underlain by cohesionless (soft or loose) soils of low density (such as alluvium), typically in association with a shallow groundwater table and are typically located on the floors of river valleys. One indicator of potential for future earthquake damage is a record of earthquake damage in the past. Ground shaking is the primary cause of earthquake damage in Washington, and ground settlement may occur with shaking. The strength of ground shaking is primarily affected by:

1. The magnitude of an earthquake;
2. The distance from the source of an earthquake;
3. The type or thickness of geologic materials at the surface; and
4. The type of subsurface geologic structure.

"Sole source aquifers" means areas designated by the U.S. Environmental Protection Agency under the Safe Drinking Water Act of 1974, Section 1424(e). The aquifer(s) must supply fifty percent or more of the drinking water for an area without a sufficient replacement available.

Species, Threatened and Endangered. "Threatened and endangered species" means those native species that are listed in rule by the State Department of Fish and Wildlife pursuant to RCW 77.12.070 as threatened (WAC 232-12-011) or endangered (WAC 232-12-014), or that are listed as threatened and endangered under the federal Endangered Species Act (16 U.S.C. 1533).

"Steep slopes" means those slopes forty percent or steeper within a vertical elevation change of at least ten feet. A slope is defined by establishing its toe and top and is measured by averaging the inclination over at least ten feet of vertical relief.

"Transport" means the conveyance of silt or sediment overland during a rain event.

"Unavoidable" means adverse impacts that remain after all appropriate and practicable avoidance and minimization have been achieved.

"Understory" means the vegetation layer of a forest that includes shrubs, herbs, grasses, and grass-like plants, but excludes trees.

"Utility corridor" means the linear alignment location of a utility such as water, wastewater, stormwater, electric or communication lines.

"Watercourse--Classes" means waters classified according to WAC 222-16-031 as follows:

1. Class I Water. All waters, within the ordinary high-water mark, as inventoried as "shorelines of the state" under Chapter 90.58 RCW and the rules promulgated pursuant to Chapter 90.58 RCW, but not including those waters' associated wetlands as defined in Chapter 90.58 RCW.
2. Class 2 Water. Segments of natural waters that are not classified as Class 1 water and have a high fish, wildlife, or human use. These are segments of natural waters and periodically inundated areas of their associated wetlands, which:
 - a. Are diverted for domestic use by more than one hundred residential or camping units or by a public accommodation facility licensed to serve more than ten persons, where such diversion is determined by the Washington State Department of Natural Resources to be a valid appropriation of water and only considered Type 2 water upstream from the point of such diversion for one thousand five hundred feet or until the drainage area is reduced by fifty percent, or whichever is less;
 - b. Are diverted for use by federal, state, tribal, or private fish hatcheries. Such waters shall be considered Class 2 water upstream from the point of diversion for one thousand five hundred feet, including tributaries if highly significant for protection of downstream water quality;
 - c. Are within a federal, state, local, or private campground having more than thirty camping units: provided, that the water shall not be considered to enter a campground until it reaches the boundary of the park lands available for public use and comes within one hundred feet of a camping unit;
 - d. Are used by fish for spawning, rearing or migration. Waters having the following characteristics are presumed to have highly significant fish populations;
 - e. Stream segments having a defined channel twenty feet or greater within the bankfull width and having a gradient of less than four percent;

- f. Lakes, ponds, or impoundments having a surface area of one acre or greater at seasonal low water;
 - g. Are used by fish for off-channel habitat. These areas are critical to the maintenance of optimum survival of fish. This habitat shall be identified based on the following criteria;
 - h. The site must be connected to a fish bearing stream and be accessible during some period of the year; and
 - i. The off-channel water must be accessible to fish through a drainage with less than a five percent gradient.
3. Class 3 Water. Segments of natural waters that are not classified as Class 1 or 2 waters and have a moderate to slight fish, wildlife, and human use. These are segments of natural waters and periodically inundated areas of their associated wetlands which:
- a. Are diverted for domestic use by more than ten residential or camping units or by a public accommodation facility licensed to serve more than ten persons, where such diversion is determined by the Washington State Department of Natural Resources to be a valid appropriation of water and the only practical water source for such users. Such waters shall be considered to be Type 3 water upstream from the point of such diversion for one thousand five hundred feet or until the drainage area is reduced by fifty percent, whichever is less; or
 - b. Are used by fish for spawning, rearing, or migration. The requirements for determining fish use are described in the State Forest Practices Board Manual, Section 13. If fish use has not been determined:
 - i. Waters having the following characteristics are presumed to have fish use:
 - (A) Stream segments having a defined channel of two feet or greater within the bankfull width in Western Washington and having a gradient of sixteen percent or less;
 - (B) Stream segments having a defined channel or two feet or greater within the bankfull width in Western Washington, and having a gradient greater than sixteen percent and less than or equal to twenty percent, and having greater than fifty acres in contributing basin size in Western Washington, based on hydrographic boundaries;
 - (C) Ponds or impoundments having a surface area of less than one acre at seasonal low water and having an outlet to a fish stream; and
 - (D) Ponds or impoundments having a surface area greater than one-half acre at seasonal low water.
 - ii. The Washington State Department of Natural Resources shall waive or modify the characteristics in subsection (a)(i) of this definition, where:
 - (A) Waters have confirmed, long-term, naturally occurring water quality parameters incapable of supporting fish;
 - (B) Snowmelt streams have short flow cycles that do not support successful life history phases of fish. These streams typically have no flow in the winter months and discontinue flow by June 1st; or
 - (C) Sufficient information about a geomorphic region is available to support a departure from the characteristics in subsection (a)(i) of this definition, as determined in consultation with the Washington Department of Fish and Wildlife, Washington State Department of Ecology, affected tribes, and interested parties.
4. Class 4 Water. All segments of natural waters within the bankfull width of defined channels that are perennial nonfish habitat streams. Perennial streams are waters that do not go dry any time of a year of normal rainfall. However, for the purpose of water typing, Class 4

waters include the intermittent dry portions of the perennial channel below the uppermost point of perennial flow. If the uppermost point of perennial flow cannot be identified with simple, nontechnical observations (see State Forest Practices Board Manual, Section 23), then Class 4 waters begin at a point along the channel where the contributing basin area is at least fifty-two acres.

5. Class 5 Waters. All segments of natural waters within the bankfull width of the defined channels that are not Class 1, 2, 3, or 4 waters. These are seasonal, nonfish habitat streams in which surface flow is not present for at least some portion of the year and are not located downstream from any stream reach that is a Class 4 water. Class 5 waters must be physically connected by an aboveground channel system to Class 1, 2, 3, or 4 waters.

"Wetlands rating system" means wetlands shall be rated according to the Washington State Wetland Rating System for Western Washington, Department of Ecology, Publication #14-06-029#~~04-06-025~~, or as revised.